```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-MODEL-frame+ p2n.model -DEV=xlh
-Q-/cgn2 1/USPTO_spool/US09651651/runat_18112005_101830_20245/app_query.fasta_1.711
-DB=GenEmb1 -QFMT=fastap -SUFFIX=rge -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS-bits -START=1 -END=-1 -MATRIX=1blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTPMT=pto -NORM-ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER-US09651651_@CGN 1 1 3367 @runat 18112005 101830 20245 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBICOK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-DEV_TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                             Query
Score Match Length DB ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
100.0
99.3
78.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenEmbl:*
1: gb_ba:*
2: gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5
2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             November 22, 2005, 10:39:15; Search time 5453 Seconds (without alignments) 5691.642 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5883141 segs, 28421725653 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MGANSKSVTASFTVIAVFFL....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                              gb_pat: *
gb_ph: *
gb_pr: *
gb_rc: *
gb_sts: *
gb_sts: *
gb_y: *
gb_vi: *
gb_htg: *
gb_pl: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4: 40 db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 om:
  1641
1899
3896
6 AX090311
15 AY989885
6 BD271623
                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .....DSESIPGKRTAVWELDKSGY 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11766282
AX090311 Sequence
AY989885 Arabidops
BD271623 Novel cla
                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0000000
```

44 45	3	42	41	40	39	38	37	36	ω 5	34	ü	3	<u>ဒ</u>	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	5	1 1	ן ני	3	= :	10	9	œ	7	σ	տ	4	
280 278	281	283.5	N	288	290.5	90	292	99	99	99.		9	299.5	99	99	99	16	16	324	325.5	329	339	343	346	356	356	_	755.5	μ,	1483.5		ָ ה	483	483	2300.5	2318	2332	2332	2332	2332	
9.4		9.6	٠	٠	٠	٠	9.8	•	10.1	٠	10.1	10.1	10.1	10.1	10.1	10.1	10.7	•	10.9		11.1	۲.		-	N				0 :	0	0	0		0		ω.	œ			78.7	
2479 2312	2030	2700	(.)	356	322194	103568	110000	23901	2575	1986	1986	1986	1986	1986	1986	1986	-	110000	2106	110000	110000	1893	3877	110000	110000	110000		86556	93398	158971	147123	118192	110000	110000	2531		119914	9	8	9	
ი ი	σ	, o	6	6	15	15	15	15	15	σ	σ	σ	σ	σ	σ	δ	15	15	σ	15	15	δ	15	14	15	15	σ	14	5	14	15	15	15	15	15	15	15	σ	თ	თ	
AX794704 BD271617				AX090329		CNS07EGJ				AX090382	AX037597	AX037595	AX037577	BD271626	BD271625	BD271616	CR382136_08	0	AR546016	CR382131_19	ြိ	CQ891270	AF293457S2		AE016819_01	٥	AX090328	AP008162	AP006356	AP004882	AP005691	°ı	P008208	8	AY957608	AF493159	AC003027	AX037606	AX037587	BD271633	
BD271617 Novel cla		. מ	0 00		0 DNA cent	DNA	tin	X77395 S.cerevisia	Z71623 S.cerevisia	Sequence	7			BD271626 Novel cla	Novel	Novel	ation (9	6 6	ence	Continuation (20 o	ation	ence	œ	Continuation (5 of	♂	bya g			Lotus	Oryza	Oryza	AP004120 Oryza sat		tion (34		Medicago		ശ	7	BD271633 Novel cla	

ALIGNMENTS

Alignment Scores: Pred. No.: Score:	ACCESSION VERSION VERSION XEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL FEATURES SOURCE ORIGIN	AX090311 LOCUS
cores:	AX090311.1 GI:13444 AX090311.1 GI:13444 Arabidopsis thaliana Arabidopsis thaliana Bukaryota; Viridipla Spermatophyta; Magno rosids; eurosids II; Lassner, M. and van E Plant sterol acyltra Patent; WO 0116308-A PATENTO COMPANY (US MONSANTO COMPANY (US 1. 1641 // organism=" //mol_type="total" //db_xref="t	AX090311
5.65e-246 2965.00	AX090311.1 GI:13444180 Ax090311.1 GI:13444180 Arabidopsis thaliana (thale cress) Arabidopsis thaliana Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis. Lassner, M. and van Benennaam, A. Plant sterol acyltransferases Patent: WO 0116308-A 4 08-MAR-2001; MONSANTO COMPANY (US) Location/Qualifiers 1. 1641 /organism="Arabidopsis thaliana" /mol type="unassigned DNA" /db_xref="taxon:3702"	AX090311 1641 bp
Length: Matches:	hale cress) le; Streptoph phyra; eudic assicales; B mnaam, A. erases 08-WAR-2001; fiers fiers bidopsis tha usigned DNA; n:3702"	•
	yta; Eml otyledon rassica rassica	DNA
1641 546	oryophyta 18; core seae; Ara	linear
	; Trac eudico bidops	PAT 2
	heophyta; tyledons; is.	PAT 21-MAR-2001

1020

```
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best I
Query
DB:
                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                 S
                                            片
                                                                                                밁
                                                                                                                      S
                                                                                                                                                                            Ś
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-651-651-5
                                                                    á
                  321
                                             901
                                                                  301
                                                                                                841
                                                                                                                          281
                                                                                                                                                      781
                                                                                                                                                                                 261
                                                                                                                                                                                                           721
                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                           221
                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                               201
                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21
| IleAsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSer
                                                          ValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGly
                                                                                                                LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
                                                                                                                                                                                                                            AlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAla
                                                                                                                                                                                                                                                                                                                                     PheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrp
                                                                                                                                                                                                                                                                                                                                                                                             AlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                                      ArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCys
                                                                                                                                                                                                            GCAATCAAATCTACTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                 CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTTGGTTCTGTTGAG
                                                                                                                                                                                                                                                                                 LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu
                                                                                                                                                                                                                                                                                                                       TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                            GCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAACCAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                ProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGGAGCGAATTCGAAATCAGTAACGGCTTCCTTCACCGTCATCGCCGTTTTTTTCTTG
                                                                                                  AAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGGTGCTGCAAAGAAAAAATAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGCTTCTTTCTGCTGACCTGCTTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AX090311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-1641)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0000
                                                           YTrpProThrAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                 340
                                             960
                                                                     320
                                                                                                  900
                                                                                                                           300
                                                                                                                                                      840
                                                                                                                                                                                 280
                                                                                                                                                                                                           780
                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                      200
                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                    RESULT 2
AY989885
LOCUS
                                          JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                       DEFINITION
    FEATURES
                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1081
                                                                                                                                                                                                                                                                                                                                                                                                                                               1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1501
                                                                                                                                                                                                                                                                                                                                                                                          1621
                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                         1899 bp mRNA linear PLN 01-JUN-2
Arabidopsis thaliana phospholipid:sterol acyl transferase (PSAT)
mRNA, partial cds.
AY989885
                                          Carlsson, A.S., Lenman, M
Direct Submission
Submitted (30-MAR-2005)
                                                                                                                                     Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 1899)
Banas,A., Carlsson,A.S., Huang,B., Lenman,M., Banas,W., Lee,M.,
Noiriel,A., Benveniste,P., Schaller,H., Bouvier-Nave,P. and
Stymns,S., theliana
                                                                                                             Arabidopsis thaliana related to the animal
                 Agricultural Sciences, Sweden
                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                         LeuAspLysSerGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGlu 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThr 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnIleThrMetAlaProGlnProGluHisAspGlySerAspValHisValGluLeuAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysLeuTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAAT
                                                                                  (bases 1 to 1899)
  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIle
                                                                                                                                                                                                                                                                               GI:66271902
                                                                     Lenman,M.,
                                                                                                                                                                                                                                                                                                                                                                                          1638
                                                                                                                                                                                                                                                                                                                                                                                                                     546
                                                                                                             synthesizes sterol esters with lecithin: cholesterol acyltrar
                            Crop Science, Swedish University of Sundsvagen 14, P.O. Box 44, Alnarp 2
                                                                       Lee, M.
                                                                        and
                                                                        Stymne
                                                                                                                acyltransferase
```

480

1440

460

1320

1380

420 1200 400 1140 380 1080

1260

an enzyme

23053,

PLN 01-JUN-2005

1620 540 520 1500 500

1560

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                 á
                                                      밁
                                                                                     S
                                                                                                                         В
                                                                                                                                                            á
                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-651-651-5 (1-546) x AY989885 (1-1899)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                           361
                     161
                                                                                                                                                                121
                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                      421
                                                                                          141
                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                              GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                             AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
ProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThr 180
                                                                                                                                                                                                                            ThräspHisProGluCysLysSerärgProäspSerGlyLeuSerälaIleThrGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                 CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSer
                                                                                                                                 GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                    AspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCys
                                                                                                                                                                                                         ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                          GTTGAGTTTGGTGTAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         phospholipids to sterols"

/codon_start=1
/product="phospholipid:sterol acyl transferase"
/product="phospholipid:sterol acyl transferase"
/protein_id="AAY43920.1"
/db_xref="GI:66271903"
/translation="MGANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
/translation="MGANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
/translation="MGANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
/translation="MGANSKSVTASFTVIAVFFLICGGRTAVCMFKCMVLDPYNQTD
HPECKSRPDSGLSAITELDPGYITGPLSTVWKEWLKWCVEFGVEANAIVAVPYDWRLS
PTKLEERDLYFHKLKLTFETALKLRGGPSIVFAHSMGNNVFFRYFLEWLRLEIAPKHYL
KWLDQHIHAYFAVGAPLLGSVEAIKSTLSGVTFGLPVSEGTARLLSNSFASSIWLIMPF
SKNCKGDNTFWTHFSGGAAKKDKRVYHCDEEEYQSKYSGMPTNIINIEISTSVTETA
LVNMTSMECGLPTLLSFTARELADGTLFKAIEDYDEDSKRMLHQLKTHUDPVFRPL
TPWERPPIKNVFCIYGAHLKTEVGYYFAPSGKPYPDNWIITDIIYETEGSLVSRSGTV
VDGNAGPITGDETVPYHSLSWCKNWLGPKVNITWAPQPEHDGSDVHVELNVDHEHGSD
IIANMTKAPRVKYITFYEDSESIPGKRTAVWELDKTNHRNIVRSPVLMRELMLQMWHD
IOPGAKSKFVTKAKRGPLRDADCYWDYGKACCAWQEYCEYRYSFGDVHLGQSCRLRNT
SANWHITAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .1899
/organism="Arabidopsis thaliana"
/organism="Arabidopsis t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 function="catalyzes a transacylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="PSAT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="PSAT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.4e-244
2944.00
99.63%
99.08%
99.29%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1899
541
3
2
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acyl groups
                                                                                                                                   420
                                                                                              160
                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                    140
                                                                                                                                                                                                           360
                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                              08
                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                               S
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
   문
                             δ
                                                                           В
                                                                                                  5
                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201
                                                                                                                                                      1441
                                                                                                                                                                                                                              1381
       1561
                                                                             1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   221
                                        521
                                                                                                                  501
                                                                                                                                                                                                                                                                 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnVal
     GlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu
                                                                                                ValaspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLys
                                                                                                                                                                          AsnIleThrMetAlaProGlnProGluHisAspGlySerAspValHisValGluLeuAsn
                                                                                                                                                                                                                                                 AspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysVal
                                                                                                                                                                                                                                                                                                                                                                               CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTATGAAACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                  ProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysasnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGAATGTGGCCTCCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleAsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValTyrHisCysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAATCAAATCTACTCTCTCGGGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                      AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                              GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                               GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG
                                                                                                                                                                                             500
                                                                                                                                                                                                                                                                                                           1380
                                                                                                                                                                                                                                                                                                                                                                                   1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                  1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
           1620
                                            540
                                                                                 1560
                                                                                                                                                          1500
                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                              460
                                                                                                                                                                                                                                                                                                                                                                                                                        440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
```

Qy 61 AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr 80 	Qy 41 LeuSerGlyIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu 60 [Qy 21 IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys 40	Qy 1 MetGlyAlaAenSerLy8SerValThrAlaSerPheThrValIleAlaValPhePheLeu 20	US-09-651-651-5 (1-546) x BD271623 (1-3896)	Indels: Gaps:	Pred. No.: 7e-191 Length: 3896 Score: 2332.00 Matches: 541 Percent Similarity: 41.58 Conservative: 0 Percent Similarity: 41.58 Microscopes: 0	Alignment Scores:	<pre>/mol_type="genomic DNA" /db_xref="taxon:3702"</pre>	FEATURES Location/Qualifiers source 13896 /organism="Arabidopsis thaliana"	/organi	and recombinant DNA Location/Qualifie	of triacrylglycerol CC production CC production	PC C12N15/09,A01H5/00,C12N1/19,C12N5/10,C12N9/10,C12P7/64// PC (C12P7/64,C12R1:645),(C12P7/64,C12R1:91),C12N15/00,C12N5/00 CC	PI ANDERS DAHLQVIST, ULF STAHL, MARIT LENMAN, ANTONI BANAS PI , HANS RONNE, STEN STYMNE	PF 28-MAR-2000 JP 2000609586 PR 01-APR-1999 EP 99106656.4,10-JUN-1999 EP 99111321.8 PR	COMMENT OS Arabidopsis thaliana (thale cress) PN J002541783-A/8 PD J0-DFC-2002	JOURNAL PAtent: JP 2002541783-A 8 10-DEC-2002; BASF PLANT SCIENCE GMBH		,	eudicotyledons; co	s thaliana (thale cress)	BD271623.1 GI:330813 JP 2002541783-A/8.	production and recombi ON BD271623	LOCUS BD271623 3896 bp DNA linear PAT 17-JUL-2003 DEFINITION Novel class enzyme in biosynthesis pathway of triacrylglycerol	T 3	Db 1621 CTTGATAAACAAATCAC 1638	. Qy 541 LeuAspLysSerGlyTyr 546	
Db 49	B &	S B 4	S B &	2 8	Q 4	Qy db	ф	Q	Db Qy	дь	Qy	D &	\$ B	Q	DЬ	Ş B	· Qγ	Db	Qy	Дb	Ş	οь	Ş	뫄	δ	D 49	? !	Db
1259 CCTTAAGTTACCATTTTATTTTTCTCTAATTGGGGGAGTTATGTTGTGACTTACTGGAT 1318				rDheGluThràlaIeuiVeieuàrdGlvGlvDroSerIleValDheàlaHisSerMetGl	176LeuTh 177	165 uGluargaspLeuTyrPheHisLysLeuLys		145 eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165	127GJyProLeuSerThrValTrpLy8GJuTrpLeuLy8TrpCy8ValGJuPneGJy11 145	TTCAATTTGATATCATCTTGTTGTGATATAATATGGCTAAGTTCATTAATTTTGGTCAATT 83	126 126		TAATCAAACAGA	rAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleTh 1	TGGTTTACAGCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTA	541 GGTCATTTTACTTGTGCATTGTGATTCTTTTGGTTGTTGCTTACTGATCGACGTGATGGA 600	8	481 TTTTTATTCAACTAGATCTGCAAGTTTTTCAGAGTGCTCAATAGTAGTTAGAAAATGTTA 540	81 81	421 TGTTTCCCATCGCTTTTGGTTCGCTAAATGTAGCGCAATGAATG	81 81	361 GTCAACAGTGACGCTTCTGAATCTGAGTTTAGAGTCATATAAAACAGCTGACTCGGCGAG 420	81 81	301 AATTCCAAGCGAAATATAGCAATGAAGCATGTCTCGTCTCTCTTATTGATTCGTTCATTA 360	81 81	241 AAGGTCCGTGATCTTCATTTCCTTCGCTCCTTATTCTGTCGGTCG	TAGG	181 GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT 240

2277 GAAATATTGCTCATCGATCACCTTGCTGGCTTCTTGTACGTCAAATTGTTTTGTTTAA 2336 382 382 2337 ATCTCTATATCAATTGTTCATATGCTTTGTCTTTGTTCTTACTATAAGAAACAAGTATAATCA 2396	49 USErPHETHYALARGGIULEUALAARGGIYTHILEUPHELYAALAILEGIUASPTYYA	29 38 AACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGATGTGTATCCATC 2 30 -ValThrGluThrAlaLeuValAsmMetThrSerMetGluCysGlyLeuProThrLeuLe 3	GYALTY/H18CY8A8PG.UGIUG.ULYY/GJNSERLY8TY/SEGLY/TPF70717/RBH	TCGGTTGTTCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTG 1 TCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTG 1 SLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysAsr 3	257	9 GAAGTGCTAGTTATCAAAGAACATATTGTGGGTAGTATACCTGTCAGCGGCCTTAGCTAA 16 7 25 9 TACAACCAAACCACATGTACACTGATTTAGTTTTCAGATTATTATGGTAGACTTTAAGTT 16	1439 CTTCTCTTTAGTTTTAAGTAGTTGATATCAACCAGGTCTTATAACTCACTGGATTTTCCT 1498 257 1499 TTTGAAAGTATTACTTTTGTTAATTGAACTGCTGTACGCGATATGGTATCTGTAGATCTT 1558	2
Q B Q B	оу Оу Оу	Q D D	0 Db	оу Оу Оу	Qy Db	Q	,	Q
3357 GCAAACTACTGAAGACTAAGATAATACTTGCTTCTGGAACACTGCTTGCT	CTAGTTCATATCTTGATTGTGCAATATCTGC aGlyProIleThrGlyAspGluThr rggacCTATAACTGGGGATGAGACGGTAAGC	3117 TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG 3176 445	2997 TCTAGTGGCATGTTATCTCAGTTGCATAAGCAAATTATTAAACAACTAAAATTTAAGTAC 3056 445	2877 ACCTTATCCTGATAATTGGATCATCACGGATATCATTATGAAACTGAAGGTTCCCTCGT 2936 444 ISer	AATATCTTTTTGAATTATGATTATCTCCCCTTGCATCTTATGCTATTAAGCGTTAAA ValGlyTyrTyrPheAlaProSerGlyLy	CCIA MANAGARIGIA I I I GOLLA G	2517 TGACTAATAGCGTCAATTTTGTTTTTCTAGCAAATCTTTGTGAAATTATAATAACATGCT 2576 383TyrHisAspAspProValPheAsnProLeuThrProTrpG1 396 2577 AACTATACTTTCAGGTTGTATCATGATGACCCTGTTTTTAATCCTCGACTCCTTGGGA 2636 396 UArgProProlleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu 414 396 UArgProProlleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu 419	382 382 2397 GAAACCTTATTATTGATTATCAGTTCTCTCCTTATATTATGGAATGTCTTTTTCGTTTAC 2456 382

. 8 & B

9 9 9 9 9

8 8 8 8 8 8 8

8 8 8 8

8 8 8 8

, oy ob ob

음 성

B

Alignment Pred. No.:	ORIGIN	FEATURES source							COMMENT	JOURNAL	AUTHORS TITLE	REFERENCE		ORGANISM	KEYWORDS	ACCESSION	, BD271633 LOCUS DEFINITION		дь О У	(J)	L J	Qy ,	ω	Ov 5		ω		, Db 34
Scores: 7e-191 Length: 3896	/db_xref="taxon:3702"	Locat 13 /orga /mol	FT source 13896 FT /organism='Arabidopsis thaliana (thale FT	and recombinant DNA Location/Qualifier	Novel class enzyme in biosynthesis pathway of triacrylglycerol CC production	,HANS RONNE,STEN STYMNE PC C12N15/09,A01H5/00,C12N1/19,C12N5/10,C12N9/10,C12P7/64// PC (C12P7/64,C12R1:645),(C12P7/64,C12R1:91),C12N15/00,C12N5/00 CC	07-FEB-2000 US 60/180687 PI ANDERS DAHLOVIST,ULF STAHL,MARIT LENMAN,ANTONI BANAS PI	PD 10-DEC-2002 PP 28-MAR-2000 JP 2000609586 PR 01-APR-1999 EP 99106656.4.10-JUN-1999 EP 99111321.8 PR	OS Arabidopsis thaliana (thale cress) PN JP 2002541783-A/18	Patent: UP 2002541783-A 18 10-DEC-2002; Base Diann Schence GMBH	Dahlqvist, A., Stahl, U., Lenman, M., Banas, A., Ronne, H. and Stymne, S. Novel class enzyme in biosynthesis pathway of triacryllglycerol production and recommissing NN molecule encoding the enzyme		Eukaryota; virioipiantae; streptophyta; Eukaryothyta; iradneophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;	Arabidopsis thatiana (thate cress) Arabidopsis thatiana Arabidopsis thatiana	401	production and recombinant DNA molecule encoding the enzyme. BD271633	3896 bp DNA n biosynthesis pathw		528 SerGluSerIleProGlyLysArgThrA.aValTrpGluenAspLySSerGlYTY 546	77 GACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGAC	CAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTC	488 ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer 507	7 TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAA	597 TTTTCIGGTTAIGTGTGATTTACCICCAATTTGTTCTTTCTAAAAATCATATATCTCTG 5656	6	TGGCTCCCCAGGTACTCTTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC	etAla-Pro 486	
165 u	Qy 145 eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165		Db 780 TTCAATTTGATATCATCTTGTTGTGATATAATATGGCTAAGTTCATTAATTTGGTCAATT 839	126	Qy 118 rGluLeuAspProGlyTyrIleThr	661 TAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCAC	98	OY 8290LIGUSERALAVALARICYSTTPPHOLYSCYSMETVALLGUASPPROTY 98 O	GGTCATTTTACTTGTGCATTGTGATTCTTTTTGGTTGCTTACTGATCGACGTGATGGA	Qy 81 81	Db 481 TTTTTATTCAACTAGATCTGCAAGTTTTTCAGAGTGCTCAATAGTAGTTAGAAAATGTTA 540	Qy 81	Db 421 TGTTTCCCATCGCTTTTGGTTCGCTAAATGTAGCGCAATGAATG	Qy 81	Db 361 GTCAACAGTGACGCTTCTGAATCTGAGTTTAGAGTCATATAAAACAGCTGACTCGGCGAG 420	Оу 81 81	QY 81	AAGGTCCGTGATCTTCATTTCCTTCGCTCCTTATTCTGTCGGTCG	81 Lys	Qy 61 AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr 80	Db 121 CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCACGC	41	Oy 21 1eCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys 40		Qy 1 MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu 20	US-09-651-651-5 (1-546) x BD271633 (1-3896)	78.65% Indels: 6 Gaps:	Score: 2332.00 Matches: 541 Percent Similarity: 41.58% Conservative: 0 Best Local Similarity: 41.58% Mismatches: 5

중 음

밁

Qy 382 Db 2277 Qy 382 Db 2337 Qy 382 Db 2397 Qy 382 Db 2457 Qy 383 Db 2517 Qy 396 Db 2637 Qy 414 Db 2697 Qy 415 Db 2977 Qy 444 Db 2937 Qy 444 Db 2937 Qy 445 Db 3057 Qy 445 Db 3057 Qy 445 Db 3117	Db 2038 Oy 330 Db 2098 Oy 349 Db 2158 Oy 369 Db 2218
GAAATATTGCTCATCATCATCATCATCATCATCATTATATTATATATA	AACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGATGTATCCATC -ValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLe

. 망

ફ

유 성

음 성

음 성

B & B & B &

음 경

음 성 음 성

, D

망

ş

Ś

```
RESULT 5
AX037587
LOCUS
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                 밁
                          FEATURES
                                                                                                                                                                                                                KEYWORDS
                                                                           JOURNAL
             source
                                                                                                                                                                                                                                                                                                                  3837
                                                                                                                                                                                                                                                                                                                                                                  3777
                                                                                                                                                                                                                                                                                                                                                                                                                 3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445
                                                                                                                                                                                                                                                                                                                                        528
                                                                                                                                                                                                                                                                                                                                                                                         508
                                                                                                                                                                                                                                                                                                                                                                                                                                          488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                encoding these enzymes
Patent; WO 0060095-A 11 12-OCT-2000;
BASE PLANT SCIENCE GMBH (DE); BANAS ANTONI (PL); STAHL ULF (SE);
BASF PLANT SCIENCE GMBH (DE); BANAS ANTONI (PL); STAHL ULF (SE);
STYMNE STEN (SE); LENMAN MARIT (SE); RONNE HANS (SE); DAHLQVIST
                                                                                               Banas,A., Stahl,U., Stymne,S., Lenman,M., Ronne,H. and Dahlqvist,A. A new class of enzymes in the biosynthetic pathway for the production of triacylglycerol and recombinant dna molecules
                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                           AX037587
Sequence 11 from Patent
AX037587
AX037587.1 GI:11227006
                                                                                                                                                                                        Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAAATTTGTTTTAAGAAAACCGAAAAA 3236
                                                                                                                                                                                                                                                                                                                                                                              AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           etAla-Pro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTACACTGCAATATTGACTCTCCGCTACTTTTATTGATTATGAAATTGATCTCTTATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTAGTTCATATCTTGATTGTGCAATATCTGCAGGTCTGGAACTGTGGTTGATGGGAACGC
                                                                                                                                                                                                                                                                                                                 TCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAAAGTGGGTAT
                                                                                                                                                                                                                                                                                                                             SerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                                                                      ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGCTCCCCAGGTACTCTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC 3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACCCTATCATTCACTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTTAACATAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGACCTATAACTGGGGATGAGACGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aGlyProIleThrGlyAspGluThr------
                                                                                                                                                                                                                                                                                                                                                                  GACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCA
Location/Qualifiers
1. .3896
/organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                     Patent
                                                                                                                                                                                                                                                     3896 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ArgSerGlyThrValValAspGlyAsnAl
                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                  PAT 16-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -Gln
                                                                                                                                                                                                                                                                                                                  3893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۷-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3296
                                                                                                                                                                                                                                                                                                                                                                                                                   3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               455
                                                                                                                                                                                                                                                                                                                                                                  3836
                                                                                                                                                                                                                                                                                                                                                                                          527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              464
                                                                                                                                                                                                                                                                                                                                                                                                                                          507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                 В
                                                                      Ş
                                                                                                                    Ś
                                                                                                                                                    밁
                                                                                                                                                                         δ
                                                                                                                                                                                                     문
                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-651-651-5 (1-546) x AX037587
   밁
                   δ
                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scores:
                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                       421
   840
                          127
                                                                                                                             118
                                                                                                                                                      661
                                                                                                                                                                                                      109
                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                             98
                                                                                                                                                                                                                             82
                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                                                                                                                                                                                                                                                                       GTCAACAGTGACGCTTCTGAATCTGAGTTTAGAGTCATATAAAACAGCTGACTCGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATTCCAAGCGAAATATAGCAATGAAGCATGTCTCGTCTCTTATTGATTCGTTCATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTGCCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTGTTGAGTTTGGTAT
                                                    TTCAATTTGATATCATCTTGTTGTGATATAATATGGCTAAGTTCATTAATTTGGTCAATT
                                                                                                    rGluLeuAspProGlyTyrIleThr------
                                                                                                                                                      TAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCAC
                                                                                                                                                                     rAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleTh
                                                                                                                                                                                                       TGGTTTACAGCTTCTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTA
                                                                                                                                                                                                                                                       GGTCATTTTACTTGTGCATTGTGATTCTTTTGGTTGCTTACTGATCGACGTGATGGA
                                                                                                                                                                                                                                                                                                      TTTTTATTCAACTAGATCTGCAAGTTTTTCAGAGTGCTCAATAGTAGTTAGAAAATGTTA
                                                                                                                                                                                                                                                                                                                                                        -GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyI1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /mol_type="unassigned
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7e-191
2332.00
41.58%
41.58%
78.65%
                                                                                                                                                                                                                             LeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-3896)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3896
541
0
5
759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----
                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                              145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                        779
                                                                                                                                                        720
                                                                                                                                                                                118
                                                                                                                                                                                                        660
                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
      899
                                                      839
                                                                                                                               126
                                                                               126
```

PheGluThralaleulysLeulargGlyGlyProSerilevalPheAlaHisSerMetGl	145 eGlualaAsnalaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165
Oy 349 USER-PHETALAXGGULUBALAARGGULTH-LEUDRELYAALSI SÕI MARTYKAS 369 HILLIH HILIH HILLIH HILLIH HILLIH HILLIH HILLIH HILLIH HILLIH HILLIH HILLIH	320 elleasnileGlulleProSerThrSer

. 양 망 . 망

Ś 문 밁

ð

8 8 8 8

8 8 8 8

밁 S

Ś

밁

뮹

Ş

B 성

. • 8 &

B

8 밁 Ś 뭥 5

음 성

```
RESULT 6
AX037606
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                               유
                                                                                                                                                                                                             망
 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                       3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3177
                                                                                                                                                                                                                   3777
                                                                                                                                                                                                                                                       3717
                                                                                                                                                                                                                                                                                                                                                                      3537
                                                                                                                                                                                                                                                                                                                                                                                                                                             3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3237
                                                                                                                                                                               3837
                                                                                                                                                                                                                                                                                            3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   445
                                                                                                                                                                                                                                                                                                                                                                                                                           464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              446
                                                                                                                                                                                                                                     808
                                                                                                                                                                                                                                                                          488
                                                                                                                                                                                                                                                                                                                                                    486
                                                                                                                       Sequence
AX037606
Banas,A., Stahl,U., Stymne,S., Lenman,M., Ronne,H. and Dahlqvist, A new class of enzymes in the biosynthetic pathway for the production of triacylglycerol and recombinant dna molecules encoding these enzymes
Patent: WO 0060095-A 30 12-OCT-2000;
                                                      Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                              AX037606.1
                                                                                                                                                                                                                                                                                                                                                                                                                   alProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrM
                                                                                                                                                                               ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aGlyProIleThrGlyAspGluThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAAAATTTGTTTTAAGAAACCGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTTTTATCATTCCTTTTGAGCTTAGTGGATGATCAGTGGCTTAAAGTGGGAAGAGGTGT
                                                                                                                                                                                                                              AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp
                                                                                                                                                                                                                                                        CCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCA
                                                                                                                                                                                                                                                                                             TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAG
                                                                                                                                                                                                                                                                                                                                                                      TGGCTCCCCAGGTACTCTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                        etAla-Pro------
                                                                                                                                                                                                                                                                                                                                                                                                         GTACACTGCAATATTGACTCTCCGCTACTTTTATTGATTATGAAATTGATCTCTTATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGACCTATAACTGGGGATGAGACGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTAGTTCATATCTTGATTGTGCAATATCTGCAGGTCTGGAACTGTGGTTGATGGGAACGC 3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG
                                                                                                                                                                                                                   GACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGAC
                                                                                                                                                                                                                                                                                                                                30
                                                                                                                                from
                                                                                                               GI:11227020
                                                                                                                                Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----V
                                                                                                                                 3896 bp
WO0060095.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ArgSerGlyThrValValAspGlyAsnAl
                                                                                                                                           DNA
                                                                                                                                           linear
                                                                                                                                           PAT
                                                                                                                                           16-NOV-2000
                                                                                                                                                                                                                                                                                                               Gln
                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                  546
                                                                                                                                                                                3893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3236
                                                                                                                                                                                                                                                        3776
                                                                                                                                                                                                                                                                                                                                  3656
                                                                                                                                                                                                                                                                                                                                                                                                           3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3116
                                                                                                                                                                                                                                                                                             3716
                                                                                                                                                                                                                                                                                                                                                                      3596
                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                               3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 464
                                                                                                                                                                                                                                      527
                                                                                                                                                                                                                                                                          507
                                                                                                                                                                                                                                                                                                               487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    445
                                                                                                                                                                                                                                                                                                                                                      486
                                                                                                                                                                                                                                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                      Ó
                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
              망
                                δ
                                                        밁
                                                                     Ś
                                                                                                           5
                                                                                                                                 밁
                                                                                                                                               5
                                                                                                                                                                 뮍
                                                                                                                                                                                     Ş
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
 Ş
                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores
                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                      481
                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                             181
                    721
                                                                                              601
                                                                                                                                 541
                                                                                                                                                                                                           421
                                                                           98
                                                                                                                                                    81
                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
```

```
US-09-651-651-5 (1-546) x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASF PLANT SCIENCE GMBH (DE) ; BANAS ANTONI (PL) ; STAHL ULF (SE) ; STYMNE STEN (SE) ; LENMAN MARIT (SE) ; RONNE HANS (SE) ; DAHLQVIST ANDERS (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                        rasnGlnThraspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleTh
                                                                                                                                                     TGGTTTACAGCTTCTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                    rGluLeuAspProGlyTyrIleThr----
                                                                                                                                                                                                                       GGTCATTTTACTTGTGCATTGTGATTCTTTTGGTTGCTTACTGATCGACGTGATGGA
                                                                                                                                                                                                                                                                                         TTTTTATTCAACTAGATCTGCAAGTTTTTCAGAGTGCTCAATAGTAGTTAGAAAATGTTA
                                                                                                                                                                                                                                                                                                                                                      GTCAACAGTGACGCTTCTGAATCTGAGTTTAGAGTCATATAAAACAGCTGACTCGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTCCAAGCGAAATATAGCAATGAAGCATGTCTCGTCTCTTATTGATTCGTTCATTA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAATTGGATCCAGGTTACATAAC-AGGTAGTTTCGGATTTTTCTTTCTTTTGAGTTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Arabidopsis
/mol_type="unassigned [
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
1. .3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7e-191
2332.00
41.58%
41.58%
78.65%
                                                                                                                                                                           LeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AX037606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-3896)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3896
541
0
5
759
                                                              į
                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                           118
                                                                                                                                                           660
                                                                                                                                                                                          86
                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                              779
                                                                                             720
126
                                                             126
```

258				232	rLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaVal		UGLUATGASDLEUTYEPheHisLysLeuLys	TTCAATTTGATATCATCTTGTTGTGATAATATGGCTAAGTTCATTAATTTGGTCAATT 839GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyII 145GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyII 145GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyII 145
Qy 415	414	Qy 383TYFHISASASPPTOVALPheABIDFOLEUThYPYTOTPG1 396 2577 AACTATACTTTTCAGGTTGTATCATGATGACCTGTTTTTAATCCTTGACTCCTTGGGA 2636 Qy 396 UArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu 414 [2277 382 2337	Qy 349 userphethralaargGluLeuAlaapgGlyThrLeuDheLysAlaiLeGluAspTyrAs 369	AACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGATGTGTATCCATC -ValThrCluThrAlaLeuValAsnMetThrSerMetGluCy8GlyLeuProThrLeuLe -	1859 300 1919 320 1979

. 말

ફ 망 Ś 밁 S 음 성 음

В ફ 음 성 음

밁

S

á 멍 Ş

밁

Ś

밁

음 성

B 성

8

밁

. Db

ð 멍 Ś

ş

```
RESULT 7
AC003027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                               ACCESSION
                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                    rocus
                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3237
                                                                                                                                                                                                                                                                                                                                                                                                     3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          445
                                                                                                                                                                                                                                                                                                                                                                                                                                                   508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    445
                                                                                                                       AC003027
AC003027.1
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicotyledons;
                                                                                                                                                                                          AC003027
Arabidopsis thaliana
                                                  Arabidopsis thaliana (thale cress)
                                                                                                      HTG
                                                                                                                                                                       complete sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          etAla-Pro---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrM 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTACACTGCAATATTGACTCTCCGCTACTTTTATTGATTATGAAATTGATCTCTTATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAAACTACTGAAGACTAAGATAATACTTGCTTCTGGAACACTGCTTTGCTATGTTCTCTA 3416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTAGTGGCATGTTATCTCAGTTGCATAAGCAATTATTAAACAACTAAAATTTAAGTAC
                                                                                                                                                                                                                                                                                                                                     SerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                                                             AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTTAACATAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGACCTATAACTGGGGATGAGACGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aGlyProIleThrGlyAspGluThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTAGTTCATATCTTGATTGTGCAATATCTGCAGGTCTGGAACTGTGGTTGATGGGAACGC 3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTTTTATCATTCCTTTTGAGCTTAGTGGATGATCAGTGGCTTAAAGTGGGAAGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                        GACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGAC 3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAAATTTTGTTTTAAGAAACCGAAAAA</u>
                                                                                                                                                                                                                                                                                                             TCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAAAGTGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGCTCCCCAGGTACTCTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC
                                                                                                                                                                                        119914 bp
                                                                                                                                                                                                                  119914
                                                                                                                                                                                               H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgSerGlyThrValValAspGlyAsnAl
                                                                                                                                                                                            BAC |
                                                                                                                                                                                               F21M11
                                                                                                                                                                                                                    linear
                                                                                                                                                                                            genomic
                                                                                                                                                                                                                    PLN 30-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----Gln 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----V
                                                                                                                                                                                                                                                                                                               3893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                            gene
                                 CDS
                                                                                                                                               misc_feature
                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
On Dec 30, 1998 this sequence version replaced gi:2734094.
Bases 1-9262 of clone F21M11 overlap with bases 68998-78259
'TAMU' BAC clone F20D22 (AC002411) and bases 119525-119914 <
F21M11 overlap with bases 1-389 of 'TAMU' BAC clone F21B7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Federspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F., Altafi, H., Araujo, R., Huizar, L., Rowley, D., Buehler, E., Dunn, P., Gonzalez, A., Kremenetskaia, I., Kim, C., Lenz, C., Li, J., Liu, S., Liu, S., S., Schwartz, J., Shinn, P., Toriumi, M., Vyotskaia, V., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W. Direct Submission
Submitted (30-DEC.1998) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                      Genes with similarity to proteins in the databases are described as 'putative', '-like' or 'similar to'. Genes that have EST similarity but no significant protein similarity are described as 'unknown proteins'. Genes that are annotated based only on gene prediction software are described as 'hypothetical proteins'. The software programs used to predict genes include: Grail (Informatice Group, Oak Ridge National Laboratory, http://compbio.ornl.gov/section/index.html), GENSCAN (Chris Burge, http://gnomic.stanford.edu/~chris/GENSCANW.html), Fexa (V.Solovyev & A.Salamov, Sanger Centre, http://genmic.sanger.c.uk/), and NetPlantGene (S.M. Hebsgaard, et al., CBS, Technical University of Denmark, http://www.bbs.dtu.dk/NetPlantGene.html).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Federspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F., Altafi, H., Araujo, R., Huizar, L., RowLey, D., Buehler, E., Dunn, P., Gonzalez, A., Kremenetskafa, I., Kim, C., Lenz, C., Li, J., Liu, S., Luros, S., Schwartz, J., Shinn, P., Toriumi, M., Vyotskafa, V., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 119914)

Federapiel, N.A., Palm, C.J., Conway, A.B., Kurtz, D.B., Conway, A.R., Au, M., Araujo, R., Buehler, E., Dewar, K., Feng, J., Kim, C., Li, Y., Oji, O., Osborne, B.I., Shinn, P., Sun, H., Toriumi, M., Vyotskaia, V., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 119914)

Federspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F., Paltafi, H., Araujo, R., Huizar, L., Rowley, D., Buehler, E., Dunn, P., Altafi, H., Araujo, R., Huizar, L., Kim, C., Lenz, C., Li, J., Liu, S., Gonzalez, A., Kremenetskaia, I., Kim, C., Lenz, C., Li, J., Liu, S., Luros, S., Schwartz, J., Shinn, P., Toriumi, M., Vysotskaia, V.S., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stanford University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (30-JAN-1999) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CA 94304, USA
3 (bases 1 to 119914)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (22-OCT-1997) Biochemistry, Stanford University/DNA Sequencing and Technology Center, 855 California Avenue, Palo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
2 (bases 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequencing and Technology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 119914)
         /gene="F21M11.1"
join(7684. .7866,7965. .8027,8122. .8160,8250. .8381,
8458. .8728,8875. .9893,10003. .10256,10344. .10410,
                                                                                               entry, AC002411."
                                                                                                                       1. .7000
/note="Proteins
                                                                                                                                                                       /note="overlap with F21M11."
                                                                                                                                                                                                                                          ecotype="Columbia"
                                                                                                                                                                                                                                                               clone="F21M11"
                                                                                                                                                                                                                                                                                            'Chromosome="I"
                                                                                                                                                                                                                                                                                                               /mol_type="genomic DN/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                             organism="Arabidopsis"
                                                                                                                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
                                                                                   .10913
                                                                                                                          ä
                                                                                                                                                                                                 bases
                                                                                                                            region
                                                                                                                                                                                                 68998-78259
                                                                                                                              are
                                                                                                                              annotated
                                                                                                                                                                                                 of 'IGF'
                                                                                                                              in
                                                                                                                                                                                                    BAC clone
                                                                                                                              the F21M11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alto,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone
```

```
/translation="MARNLRIKKACDAMKLLGISETKTBAFLAKLKYYENNWOPIEE
DAYKYLLDAIFDEADAGSTEKNKKEEEKKKSEVAYISRGRKAPEPLVODEE
DDMBDEFPLKRRLKSRGRASASSSSSSYNNEDLKTOPEEEDEDGVTELFPLKRY
VRRNGERGLAMTYYNNAS PSSSRLSMEPEEVPMYLLPAHPMETKVSEASALVILND
EPNIDHKPVISOTGNCSAPMLEMGKSN.HYQEWDWETKOILNDTTAMDVSPSSALGSS
SEHKVAAAS VELAKSTSGEAKICLSPAPATGSTYNLHLPSMEDLRRAMEEKCLKSYEI
VHPEFSVLGFMKDMCSCYIDLAKNSTSQLLETETVCDMSKAGDESGAVGISMPLVVVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="mdrtmflslt1asll/govsagdmn1lnglrglgssssgng1vs
kg1ktdlkgyceswr1nverhirkkprycpgcvsh1koymfsg0ykdbvArtvdEvI
LHFGSMCCSKSKCDGmbaMIFD1DDTTLST1FYHKKNGFFGGEKLNSTYKEDMTQKKK
APAVPHMKKLYHD1REBG1K1F1LSSRKEYLRSATVDN1LQAGYYGWSNLMLRGLEDQ
QKEVKQYKSEKEKMLMSLGYRYWGVMGDQWSSFAGCPLPRRTFKLPNS1YYVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ECEISGDGWKAISNMKDITAGEENVEIPWVNEINEKVPSRFRYMPHSFVFQDAPVIFS
LSSFSDEQSCSTSCIEDCLASEMSCNCAIGVDNGFAYTLDGLLKEEFLEARISEARDQ
RKQVLRFCEECPLERAKKVEILEPCKGHLKRGAIKECWFKCGCTKRCGNRVVQRGMEN
                                                                                                                                                                                                                                                                                                        complement(16835..20238)
/gene="F21M11.4"
/gene="F21M11.4"
complement(join(16835..17185,17274..17392,17491..1765
tcomplement(join(16835..17185,17274..18361,18504..18604,
17795..17885,17982..18079,18175..18361,18504..18604,
18705..19049,19134..19349,19439..19791,19862..19967,
20188..20238))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein id="AAD10667.1"
/protein id="AAD10667.1"
/db_xref="GI:4204286"
/translation="MLDQISGNHTHEKLSVETAEPHHLNDRVHIVEEIDKASVIPITE
ICDEABEKCSPSTISKKRVTFDSKVKTYEHVVSEESVELSEEKNEEVESEKRSLKSSK
TDDQIIEVASNASGSYPENHRYCNCRESDDDIEDDEFDCSDSDLDEDEEYYSDVGFSE
DSLHNPTKEVYTQDIGDKTEEIDSKLRRSNETVRDGNHYDGQGYLNPVENLTQWKSAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLQVFFTPNGKGWGLRTLEKLÞKGAFICEYIGEILTIPELYQRSFEDKFTLÞVILDAH
WGSEERLEGDKALCLDGMFYGNISRFLNHRCLDANLIEIPVQVETPDQHYYHLAFFTT
RDIEAMEELAWDYGIDFNDNDSLMKÞFDCLCGSRFCRNKKRSTKTMQILNKA"
                          /proteIn_id="AAD10669.1"
/db_xref="G1:4204288"
/db_xref="G1:4204288"
/translation="MGSSSPEARARAQVPSMTLIFLEIICTVHVYTNRRKLNRDVLSA
/translation="MGSSSPEARARAQVPSMTLIFLEIICTVHVYTNRRKLNRDVLSA
NLNIFKRVTRRDLRFMESVISIYKSLNAAVSVHLPQLQIPNDCNYKNDALNNSNSPKH
GESEDSEMTDKDVSKRSGGTDSSSRDGSPLFTSBESDFRFKHDOMTEKQLSDHLLLYB
FESERVDAANHTPESYTEQAAKAVRDITAFSEQFSNAARKFICGDSFIDESSPNBKTQDF
TLLRLMESLRSDDFTDYVKAQNHQMVYFSFWVIYSFVLCLRSNNLRCVVIFCVQQLPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAVDASLSTWLSTSESGSECNSASMYTLTPEKLKSTSCYSKPLRINHDDRPVLCALTL
EDIKQFSATSTPRKSPSKSPDETPIIGTVGGYWGNRSKAIDCGSASSFKGIPNTSSKY
REDKSVNWHSTPPEARLEKALNNIDK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Unknown protein; Location of ESTs 40C3TT.
gb|AA728590 and40C3T7, gb|T04573"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(join(14567..14641,14787..15831,15906..16006,
16327..16362))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="F21M11.2"
/note="Similar to acid phosphatase; Location of ESTs
110C2T7 , gb|[42036, and 110C2XP, gb|AI100245"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="F21M11.2"
join(13033...1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10501. .10551,10685. .10781,10885. .10913)
/gene="F21M11.1"
/note="Hypothetical protein"
SHTEQDSKRKRDITASDAMENHLKVPKRENNLMQKSADIDCNGKCSANSDDQLSEKIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SKGRTKQKQSQKENSNFIADQEEKRDSSSFGTDPQIDDITLSVKPKCRIEPKKLRNQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16327. .16362))
/gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15906. .16006,16327. .16362))
/gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (join (14004. .14312,14565. .14641,14787.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (14004. .16362)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="F21M11.2"
join(13061. .1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13033.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAD10665.1"
/db_xref="GI:4204284"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="AAD10666.1"
/db_xref="GI:4204285"
                                                                                                                                                                                                                                                   /gene="F21M11.4"
/note="Hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .13488,13717.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .13488,13717. .13926,14139. .14316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .13926,14139.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .14514)
                                                                                                                                                                                                                                                                                                                                                                                              .17656,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .15831,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                            В
                             Q
                                                                                      밁
                                                                                                                                        S
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                         20872
                                                                                                                                                                                                                                                                                                                    20812
                                18
                                                                                                                                           61
                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲
                             Lys---
```

gene

mRNA

Sg

gene

CDS

gene

mRNA

CDS

```
US-09-651-651-5 (1-546) x AC003027 (1-119914)
                                                                                                                                                                                                                                                                                                                                                                        LeuSerGlyIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                 ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                      IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                                                                                                     MetGlyAlaAsnSerLysSerValThrAlaSerPheThrVallleAlaValPhePheLeu
                                                                                              AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                       CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                             CCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PQVYYEGDTVKNIKAELARGMKIKCTKCSLKGAALGCFVKSCRRSYHVPCAREISRCR WDYEDFILLCPAHSSVKFPNEKSGHRVSRAEPLPKINVAELCGLEGYFPAFTKELVLCG SALSKSDKKLMSSLAVRFNATISRYMNPSVTHVIASTDEKGACTRTLKVLMGILNGKW IINAAMMKASLKASQPVDEEPFEIGLDTYGGCODGFKTARLRAETNKFPKLFEGLKFYFF GDFYKGYKEDLQNLVKVAGGTILNTEDELGAESSNNVNDQRSSSIVVYNIDPPHGCALGEEVTIIWQRANDAEALASQTGSRLVGHTWVLESIAGYKLHPVIG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="AAD10668.1"
/db_xref="dt:4204287"
/db_xref="dt:4204287"
/ranslat.on="McANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
/ranslat.on="McANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
IIPGFASTQLRAWSILDCPYTPLDFNPLDLVWLDTTKLLSANVEMFKCWVLDFVNQTD
HPBCKSRPDSGLSAITELDPGYITGPLSTVWKEWLKWCVFFQIEANAIVAVPYDWRLS
PTKLEERDLYFHKLKLTFETPALKLGGPSIVFAHSMGNNVFRYFLEWLRLEIAPHYL
KWLDQHIHAYFAVGAPLLGSVEAIKSTLSGVTFGLPVSEGTARLLSNSFASSMLMFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join(20752. .20994,21362. .21497,21596. .21740,21825. .21994,
22102. .22178.22542. .22758,22920. .23064,23343. .23442,
23599. .23693,24021. .24072,24227. .24298,24441. .24647)
/gene="F21M11.5"
/note="Hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="F21M11.6"
/note="Unknown protein;
gb|H76794 and 203124XP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="F21M11.6"
28007. .28465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="F21M11.6"
27777. .28734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAGPITGDETVPYHSLSWCKNWLGPKVNITMAPQILIGKIKQQPEHDGSDVHVELNVD
HEHGSDIIANNTKAPRVKYITFYEDSESIPGKRTAVWELDKSGY"
27777. . 28734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SKNCKGDNTFWTHFSGGAAKKDKRVYHCDEEEYQSKYSGWPTNIINIEIPSTSARELA
DGTLFKAIEDYDPDSKRMLHQLKKYVPFFVIRNIAHRSSLAGFLLYHDDPVFNPLTPW
ERPPIKNVFCIYGAHLKTEVGYYFAPSGKPYPDNWIITDIIYETEGSLVSRSGTVVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MNTKTMRLPPRRVLTADKRKERDAFISSVTDNPPEIAKFPSPPPKLYPPPVNPISKKSSTAAAEPIGSNQLMLAGYLSHEYLTQGTLFGEQWNQARAQAESSKIKPSHTVEPAEECEPKRKYYREVANLLRSDGAQLPGIVNPAQLARFLKL"
complement (29264...32033)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KALEQTSSNITICGFCQSARVSEATGEMLHYSRGRPVDGDDIFRSNVIHVHSACIEWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (join (29264. .31015,31312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="F21M11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="AAD10670.1"
/db_xref="GI:4204289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="F21M11.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.81e-189
2332.00
41.58%
41.58%
78.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location of ESTs gb|AA605510"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119914
541
0
5
759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .31414,31484. .31587
                                                                                                      80
                                                                                                                                                             20931
                                                                                                                                                                                                                                                                                                                          40
                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                    20
81
                                                   20991
                                                                                                                                                                                                                                                                       20871
                                                                                                                                                                                                                                                                                                                                                                                 20811
```

8 8 8 8 8 8 8 8 8 8 8

CILAMBILACETIA IIIIIIIII CICLAMI ISBOSAGI IAIGISE (CICAGE I ACISSA) 201GlyàlaProLeuElySerValGluàl 241	231	217 rLeulysTrpLeuAspGLnHisfleHisAlaTyrPheALaVa1 231 	1 TAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGCTAGAAATTGCACCAAAACATTA 21	21831 CTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTAIAGTATTTGCCCCATTCAATGGG 21890 197 YASnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTy 217	rPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGl		165 uGluargaspleuTyrPheHisLysLeuLys	145 eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165 	127GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyII 145	126 126 21531 TTCAATTTGATATCATCTTGTTGTGATATATATATGGCTAAGTTCATTAATTTGGTCAATT 21590		98 rAsnGlnThraspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleTh 118 	82 LeuLeuSerAlaValAenCysTrpPheLysCysMetValLeuAspProTy 98	GGTCATTTTACTTGTGCATTGTGATTCTTTTTGGTTGTTGCTTACTGATCGACGTGATGGA 2	21232 TETTERITCARCTAGATCIGCARGITETTCAGARGIGCIGAATAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGT	81 81	TGTTTCCCATCGCTTTTGGTTCGCTAAATGTAGCGCAATGAATG	21112 GTCAACAGTGACGCTTCTGAATCTGAGTTTAGAGTCATATAAAACAGCTGACTCGGCGAG 21171	81 81	21052 AATTCCAAGCGAAATATAGCAATGAAGCATGTCTCGTCTCTCTTTGATTGA	2 AAGGTCCGTGATCTTCATTTCCTTCGCTCCTTATTCTGTCGGTCG
QY 382 382 Db 23148 GAAACCTTATTATTGATTATCAGTTCTCCTTATATTATGGAATGTCTTTTTCGTTTAC 23207	23088	Db 23028 GAAATATTGCTCATCGATCACTTGCTGGCTTCTTGTACGTCAAATTGTTTTGTTTAA 23087	Qy 382	3	Qy 349 uSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyrAs 369	Qy 330 -ValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLe 349	AACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGATGTGTATCCATC	22730 TATTAACATTGAAATTCCTTCCACTAG-CGGTTAGACTCTGTATATGCAACTGTAACACT	300 gya 22670 CGI	22610 C	260 AP 22550 TC	22490 CF	Db 22430 GAGAAGAAACTTTGACTGAAATCTTTTTTTTTTAATAGGCTATGATTTGTTTATTGAAAT 22489	Db 22370 TACAACCAAACCACATGTACACTGATTTTAGTTTTCAGATTATTATGGTAGACTTTAAGTT 22429 Qy 257 257	257 -	22310 GAAGTGCTAGTTATCAAAGAACATATTGTGGGTAGTATACCTGTCAGCGGCCTTAGCTAA	Db 22250 TTTGAAAGTATTACTTTTGTTAATTGAACTGCTGTACGCGATATGGTATCTGTAGATCTT 22309 Ov 257 257	1	Db 22190 CTTCTCTTTAGTTTTAAGTAGTTGATATCAACCAGGTCTTATAACTCACTGGATTTTCCT 22249	22130 A	Qy 241 alleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGlu 257

\text{\quad \quad \qquad \quad \quad

음 성

B & B & B & B & 8

8 B 8

486	484 etAla-Pro (Q
18787	CCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTTAACATAACAA	Ö
2 4	464 alProTyrHasSerLeuSerTTpCysLySASTTpLeuGlyProLySVaLASTILETITM	. 5
	00 GIVENCIARMINIIANETETEEVENTIIIIIIIIIIIIIIIIIIIIIIIIIIIII	5
		2 5
,	W	? !
24167	24108 GCAAACTACTGAAGACTAAGATAATACTTGCTTCTGGAACACTGCTTGCT	ğ
463	463 4	Ś
24107	24048 TGGACCTATAACTGGGGATGAGACGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT 2	ф
463		Ś
24047		망
455	446	ş
23987	23928 AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAATTTTGTTTTAAGAAACCGAAAAA 2	망
445	445 4	ş
23927	23868 TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG 2	탕
445	445 4	Ş
23867	23808 TTTTTATCATTCCTTTTGAGCTTAGTGGATGATCAGTGGCTTAAAGTGGGAAGAGGTGT 2	뭥
445	445 4	Ş
23807	23748 TCTAGTGGCATGTTATCTCAGTTGCATAAGCAAATTATTAAACAACTAAAATTTAAGTAC 2	Db
445	445 4	Ş
23747	GGTAATTTTCCGCAATGGCAGAAGTAAAACAGGAAGGCAAAGTCTTCTGTATCAG	뭥
445	444 1Ser	Ş
23687	23628 ACCTTATCCTGATAATTGGATCATCACGGATATCATTTATGAAACTGAAGGTTCCCTCGT 2	뭥
444	- W - A₁	Ş
23627	23568 GGTACTAAATGTATGAAGCTGTCTGTCATAGGTTGGTTATTACTTTGCCCCCAAGTGGCAA	뮹
424	4.	5
23567	23508 AATATCTTTTTGAATTATGATTTATCTTCTCCCTTGCATCTTATGCTATTAAGCGTTAAA 2	망
114	414 4	Ş
23507	23448 ATGCATTCTCAATATCACATTATGCGTTGACTTTGTTATTATATTCCCCCATTTGGTTTGC 2	F
114	414 4	ş
23447		망
114	396 uArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu 4	ş
23387		망
396	383TyrHisAspAspProValPheAsnProLeuThrProTrpG1 3	Ś
23327	23268 TGACTAATAGCGTCAATTTTGTTTTTCTAGCAAATCTTTGTGAATTATATATA	밁
382	382 3	ş
23267	23208 AGTTATGAATGCAAAAGGGGGTATTTTAGTTGATTGATTCTCTCATTCTCTAGTTTGTTT	뮹
882	382 3	Ş

27	67	47	87	27	57	07	17	7	27	;	i :		ĭ	27	77
	CDS		FEATURES source	REFERENCE AUTHORS TITLE JOURNAL		REFERENCE AUTHORS	N.	ACCESSION VERSION KEYWORDS	RESULT 8 AF493159 LOCUS DEFINITION	Qy 528 Db 24588	Qy 508 Db 24528	Qy 488 Db 24468	Qy 487 Db 24408	Db 24348	Db 24288
02.1" 01 " FLIFSILLAFLAV FLIFSILLAFLAV FLIFSILLAFLAV FLOLVMEMINTIKACI GSSTAVFGHSIGNN TLSGFFFGLPVSE TLSGFFFGLPVSE FLANGSFFKAIED	821980 821980 /note="enzyme involved in the metabolism of phospholipids and sterols" /codon_start=1 /product="lecithine cholesterol acyltransferase-like	/db xref="taxon:3880" /db xref="taxon:3880" /clone_lib="Samuel Roberts Noble Foundation Medicago /clone_lib="Samuel Roberts Noble Foundation Medicago /truncatula insect herbivory library (Korth, K., et al., unpublished)" unpublished)" /note="fabaceae; sequence derived from EST clones BE321377	unca	, m	Expression in yeast of a novel phospholipase Al CDWA from Arabidopsis thaliana Eur. J. Biochem. 271 (18), 3752-3764 (2004)	2609) nveniste,P., Banas,A., Stymne,S. and	Medicago truncatula (barrel medic) Medicago truncatula Medicago truncatula Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; rosida; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;	I:25992000	2609 bp mRNA linear PLN 22-SEP-2004 Medicago truncatula lecithine cholesterol acyltransferase-like	8 SerGluSerIleProGlyLy8ArgThrAlaValTrpGluLeuAspLy8SerGlyTyr 546 	8 ASPI1eI1eAlaAsnMetThrLysAlaProArgValLysTyrI1eThrPheTyrGluAsp 527 		7	TTTTCTGGTTATGTGTTGATTTACCTCCAATTTGTTCTTTCT	B TGGCTCCCCAGGTACTCTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC 24347

Best Local Similarity: Query Match: DB:

Percent Similarity:

Alignment

М :

-60-Sn

651-651-5 (1-546)

```
AlaAsnSerLysSerValThrAlaSer----
   SerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTCGCATTTCTCGCCGTCGCCGAAGGAGATTCCGGCCAAGGCTCCGAACTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IleAlaValPhePheLeuIleCysGlyGlyArgThrAlaValGluAspGluThrGluPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCCATAGCTTCTCTCTCGCTGCTTCAATGGCGAACAAACCGTTTCTCATCTTCTCCATC
                                                                                LeuLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuPro
                                                                                                                                               LysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaPro
                                                                                                                                                                                       TCATTGGGTAATAACGTTTTTCGTTATTTCTTGGAGTGGTTGAAGCTAGAAATTGCACCA
                                                                                                                                                                                                                                                                   LysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHis
                                                                                                                                                                                                                                                                                                                TATGATTGGAGACTGTCACCATCCATGCTTGAAGAACGAGACCTTTACTTTCATAAGCTT
                                                                                                                                                                                                                                                                                                                                  TyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeu
                                                                                                                                                                                                                                                                                                                                                                          GAATGGATTAAGTGGTATTGAATTTGGCATAGAAGCTAATGCAATAATTGCTGTTCCT
                                                                                                                                                                                                                                                                                                                                                                                            GluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTTGGCTCGACACCACCAAACTTCTTTCTGCTGTGAATTGTTGGCTTAAGTGCATGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValTrpLeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAGCATGGTCTATTCTTGACTGCCCTTACTCTCCGCTAGATTTCAATCCTCTCGATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisGlyAspTyrSerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeu
                                                                                                                            AMACATTATATCCAATGGCTGGATCAACATATTCATGCTTATTTTGCTGTTGCTGCTCCA
                                                                                                                                                                                                                                                   AAATTGACATTTGAGACTGCTTTCAAACTTCGAGGTGGCCCCTCTTTAGTTTTTGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCGGAATTACAGAGCTTGATCCAGGTTATATAACAGGACCTCTTTCGTCTGTATGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGGACCCTTACAATCAAACAGATCATCCTGATTGTAAATCCCGTCCTGATAGCGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATTACTCTAAACTCTCCGGCATTATTATCCCCAGGCTTCGCTTCTACTCAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PWDRPPIKNVFCIYGSNSKTKVGYYFAPSGKPYPDNWIITDVVYEYEGSLVTRSGNLV
EGNPGSISGDETVPYNSLSWCKNWLGPKVNITRAPGSEHDGSDVQIDLAVEHHYGDDI
VPNWTRFPRVKYITYYEDSESLPGKKTAVWELDKANHRNIVRSSVLMREKLELKEWRDI
HPDAKSEFVTKAKRGPLRDEDCYWDYGKARCAWPEYCEYRYVFGDVHLGQSCRLRYTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x AF493159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6.89e-190
2318.00
85.33%
74.42%
78.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-2609)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----PheThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2609
416
61
62
20
                                 274
                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                             174
                                                                                                                                                                                                                                                                                                                                                                            522
                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                                                                                                                                        462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         222
    882
                                                                822
                                                                                             254
                                                                                                                            762
                                                                                                                                                         234
                                                                                                                                                                                       702
                                                                                                                                                                                                                      214
                                                                                                                                                                                                                                                     642
                                                                                                                                                                                                                                                                                                                582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54
                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                      RESULT 9
AY957608
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                      DEFINITION
                                 REFERENCE
   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1000
                                                                                                                                                                                                                                                                     1660
                                                                                                                                                                                                                                                                                                                                1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1240
                                                                                                                                                                                                                                                                                                                                                                                            1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             275
                                                                                                                                                          AY957608
Citrus sinensis |
complete cds.
AY957608
Citrus sinensis
Citrus sinensis
Citrus sinensis
Citrus sinensis
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Eukaryota; Viridiplantae; Streptophyta; edocotyledons; core eu
rosids; eurosids II; Sapindales; Rutaceae; Citrus.
1 (beases 1 to 2531)
1 Renveniste, P., Schaller, H., Noiriel, A. and Nave, P.
Citrus sinensis Phospholipid Cholesterol Acyltransfer
                                                                                                                                            AY957608.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValPheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGACCCAGACAGCAAGAGACTCTTGTACCAATTAGAGAAATCATATCTTGGTGATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCAAGTAGGTACCAATACATATCACTGTGATGAGGAGGAGTTTAAGTCAAACTTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSer :::
                                                                                                                                                                                                                                                                                                                               AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp 527
                                                                                                                                                                                                                                                                                                                                                                                                            ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAAATCTGGTTGAAGGGAACCCTGGATCTATAAGTGGCGATGAGACGGTTCCATACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATAACTGGATCATTACAGATGTCGTTTATGAGTACGAAGGATCTCTAGTCACAAGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCAGTAATTCAAAGACAAAGGTTGGTTACTACTTTGCCCCTAGCGGCAAGCCGTATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyAlaHisLeuLySThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGATGGCCAACAAAGATAATCAACATTGAAATTCCTTCAACCCGTGGATTTGAAGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTTTTTTCCAAGTACTGTAGAGCAAGTAATAATATTGGAAGCATTTTTCTGGAGGA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAla
                                                                                                                                                                                                                                                                                                                                                                                            TCAGAACACGATGGCTCAGATGTACAGATTGATTTGAATGTGGAACATCACTATGGAGAT 1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCCTATCTTGGTGCAAAAATTGGCTGGGACCAAAGGTGAACATTACAAGAGCTCCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThr
                                                                                                                                             GI:61808336
                                                                                                                                                                                       putative
                                                                                                                                                                                         2531 bp
sterol
                                                                                                                                                                                         mRNA Line
      Acyltransferase-like
                                                                                                                                                                                                         linear
                                                                                                                                                                                         protein mRNA,
                                                                a; Tracheophyta;
eudicotyledons;
                                                                                                                                                                                                       PLN 30-MAR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1119
                                                                                                                                                                                                                                                                                                                                                                                                                            507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   939
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          407
```

В Ş 밁

유 성

δ 밁

703 215 643 195 583 175 523 155 463 135 403 115 343

δ 밁 á 8

823

763

235

밁 Ś 유

5

망 Ś 밁 Ś 밁 á 밁 Ş 밁 á

283

75

223

169

55

115

15 55

á

95

```
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                    δ
                                                                             밁
                                                                                                       밁
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                     ર્
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
           Ş
                                 문
                                                                                                                                                                                                                                                                                                                                                                                     US-09-651-651-5 (1-546) x AY957608
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scores:
              146
                                      433
                                                              126
                                                                                      373
                                                                                                             106
                                                                                                                                      313
                                                                                                                                                                                      253
                                                                                                                                                                                                                                    193
                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
2 (bases 1 to :
Benveniste, P., :
                                                                                                                                                            86
                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                             46
                                                                                                                                                                                                                                                                                                              26
                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (09-MAR-2005) Plant Molecular Biology Institute, rue Goethe, Strasbourg, Alsace 67083, France Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                               φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
GluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGlu
                                                                                                                                   ProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAla 85
                                                                                                                                                                                                                                                                                     GAAGCCTCCGCGAAAGGCGGCGAGTTCACCGGGGACTACCCCAAGTTGTCCGGAATCATA
                                                                                                                                                                                                                                                                                                   ThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIle
                                                                                                   CysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIle
                                                                                                                                                                                                                                                  ACACGTCGTTTCGCTGTCGTCCTCCTCGTCGTCGTTCTTGCTTGGAGCCCTGCGC
                                                                                                                                                                                                                                                                                                                                                              ThrAlaSerPheThrVallle-----AlaValPhePheLeuIleCysGlyGlyArg
                                                  ThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIle
                                                                                      TGCAAGTCTCGACCTGATAGTGGTCTTTCCGCAATTACAGAACTTGATCCAGGTTATATA
                                                                                                                                                                                                                                     ATACCAGGCTTTGCGTCGACTCAGCTGAGAGCATGGTCAATCCTCGACTGTCCGTACTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MONTOPTRRFAVVLLLVVVVLLGALREASAKGGEFTGDYPKLSG
III PGFASTGLRAWSILDCPYSPLDFNPLDLVMLDTKLLSAVNGWLKGWITDFYNGT
DNPECKSRDSGLSAITELDPGYITGPLSSVWKEWVKWCVEFGIEANSILAPYDWRL
SPSKLEERDLYFHKLKLTFETALKLRGDFSLVLLAHSLGNNVFRYFLEWLKLEIPPKGY
IKWLDEHIHAYFAVGSPFLGATGSVKATLSGETSGLPVSEGTARLWFNSFGSSLWMWP
FSKYCRADNKYWKHFSGGTRKDHHIHQCDEQEFRSNYSGMPTNLINIEIPSIRELEAY
PSVSEVAHNNYFSSIEGCLPTGLSFSAREISDGTPFKSIEDVDFSSKSRPLHLLEKSYHG
DPVLNPLTPWDRPPIKNIFCIYGIDSKTEVGYYFAPSGKPYDDNWIITGVIYEIEGSL
FSRSGNLVEGNPGFTSGDETVPYHSLSWCKNWLGPKVNITRAPGOSHDGSDMQVELNV
EHQEEADIVPNMTRSPRVKYITYYEDSESIPGRKTAVWELDKANHRNIVRSPVLMREV
WLQMWHDTRPDATSKFVTKAKRGPLRDEDCYMDYGKARCAWPEYCEYRYNFGDVHLGQ
SCRIKNSPTYLLSHYV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="putative sterol
/protein_id="AAX56094.1"
/db_xref="GI:61808337"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /mol_type="mRNA"
/cultivar="Washington navel orange"
/db_xref="taxon:2711"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          function="catalyze the synthesis of sterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Citrus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="sequence derived from EST CK939714"
                                                                                                                                                                                                                                                                                                                                                                                                               2.15e-188
2300.50
85.77%
75.36%
77.59%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2531)
Schaller, H., Noiriel, A. and Nave,
                                                                                                                                                                                                                                                                                                                                                                                       (1-2531)
                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   esterification protein"
                                                                                                                                                                                                                                                                                                                                                                                                               2531
413
57
67
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CNRS,
                                                                                                                                                                                                                                                                                                               45
                165
                                                                145
                                                                                       432
                                                                                                                125
                                                                                                                                       372
                                                                                                                                                              105
                                                                                                                                                                                       312
                                                                                                                                                                                                                                                                                                                                                                25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                    δ
                                                   В
                                                                   á
                                                                                           밁
                                                                                                                    δ
                                                                                                                                                   밁
                                                                                                                                                                  Ş
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                   성 음
                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
   В
                                                                                                                                                                                                                                                  1270
                                                                                                                                                                                                                                                                                                                                                     1150
                                                                                                                                                                                                                                                                                                                                                                                                      1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1030
     1570
                                                    1510
                                                                                                   1450
                                                                                                                                                    1390
                                                                                                                                                                                                                                                                                                   1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        613
                                                                             479
                                                                                                                             459
                                                                                                                                                                           439
                                                                                                                                                                                                                                                                           399
                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                             339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        493
                            499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGCTAATTCAATCATTGCCGCTCCATATGATTGGAGATTGTCACCATCAAAGCTCGAG
                                                                                                                                                                                                                                                  GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln
                                                                                                                                                                                                                                                                                                                                                                                                      TCCAGCATAGAATGTGGACTTCCTACTCAGTTATCCTTCTCTGCTCGAAATATCAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProSer-----ThrSerValThrGluThrAlaLeuValAsnMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACTGGAAGCATTTTTCCGGGGGT----ACAAGGAAGGATCATCACATACATCAGTGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTTTTGGTTCTTCATTATGGATGATGACCATTTTCAAAATATTGTAGAGCTGATAACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerPheAlaSerSerLeuTrpLeuMetProPheSerLy8AsnCy8Ly8GlyAspAsnThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGCCTATTTCGCTGTGGGATCTCCTTTTCTGGGTGCAACTCAATCAGTCAAAGCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAGAGACCTTTATTTTCACAAACTAAAGTTGACATTTGAAACTGCCCTTAAACTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArg
                                                                                                                                                    ATTGAAGGATCTCTCTCTCAAGGTCAGGTAATTTGGTTGAAGGAAATCCAGGACCAACC 1449
                                                                                                                                                                                                                                                                                                                                                     GGAACCTTTTTCAAGTCAATCGAGGATTATGATCCAGAAAGCAAGAGGCCTCTTCACCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTTCGATACGTGAACTTGAGGCTTATCCATCAGTCTCAGAAGTAGCTCATAACAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAACAAGAATTTCGGTCAAACTATTCTGGATGGCCAACAAATTTAATCAATATTGAAATT
                                                                                                                                                                    ThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIle
                                                                                                                                                                                                                 PheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGlu
   CTGAATGTAGAACATCAAGAAGAAGCAGACATTGTTCCCAACATGACAAGGTCACCAAGG
                   LeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArg
                                                                 LysValAsnIleThrMetAlaProGlnProGluHisAspGlySerAspValHisValGlu
                                                                                                      AGTGGGGATGA
                                                                                                                 ThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyPro 478
                                                                                                                                                                                                   )GACGGTACCATACCATTCTCTCTCTTGGTGCAAAAACTGGCTTGGGCCC
                               518
                                                                                498
                                                                                                                                                                               458
                                                                                                                                                                                                                              438
                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                               398
                                                                                                                                                                                                                                                                                                                                                        1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 338
                                                                                                                                                                                                      1389
                                                                                                                                                                                                                                                                                                       1269
                                                                                                                                                                                                                                                                                                                                                                                                        1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           552
                                                       1569
                                                                                                                                                                                                                                                                                                                                                                                378
                                                                                                                                                                                                                                                                                                                                                                                                                                358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  205
                                                                                                        1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           732
```

	Qy Db 1 Qy 1 Db 1 RESULT 10 APO08208 3 APO088 APO08 APO08 APO08 APO08 APO08 APO08 APO08 APO08
APPO08208 000 000 000 000 000 000 000 000 00	539 539 53208 53208 53208 53208 53208 53208 53208 53208 53208
1000001 11000000	VallysTyrileThrPheTyrGlu :::
1010000 12100000 13100000 15100000 17100000	VallysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgThrAlaVal 538
APPO08208 083 APPO08208 084 APPO08208 085 APPO08208 086 APPO08208 089 APPO08208 099 APPO08208 100 APPO08208 100 APPO08208 100 APPO08208 100 APPO08208 110 APPO08208 110 APPO08208 110 APPO08208 111 APPO08208 112 APPO08208 112 APPO08208 112 APPO08208 113 APPO08208 113 APPO08208 112 APPO08208 113 APPO08208 112 APPO08208 112 APPO08208 112 APPO08208 113	APO08208 059 APO08208 061 APO08208 062 APO08208 063 APO08208 064 APO08208 066 APO08208 066 APO08208 067 APO08208 067 APO08208 070 APO08208 071 APO08208 071 APO08208 077
8200001 8400001 8500001 8500001 8700001 8700001 9700001 9700001 9700001 9700001 9700001 10000001 10000001 10000001 1000000	
8310000 8510000 8610000 8610000 8710000 8910000 9910000 9910000 9910000 9110000 9110000 9110000 10110000 10210000 10310000 10410000 10510000 10710000 117110000	601000 6210000 6210000 6310000 6410000 6510000 6610000 6710000 6910000 7010000 7210000 7210000 7310000 7310000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000 7510000

POORSEDE 132 13300001 13310000 10000000000000000	Db 105922 Qy 126	ive: 51 58: 81 1001		1483.50 29.50% 26.17% 50.03%	SCOTE: Percent Similarity: Best Local Similarity: Query Match: DB:
208 132 1320001 13310000 208 132 1320001 13510000 208 133 1340001 13510000 208 133 1340001 13510000 208 133 1340001 13510000 208 133 1340001 13710000 208 134 1340001 13710000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340001 14510000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 1340000 208 134 234 234 234 234 234 234 234 234 234 2	Qy	110000 401	Length:	7.3e-116 1483.50	
1320001 13310000 1340001 13510000 1350001 13510000 1360001 13710000 1360001 13710000 1390001 14710000 1490001 14710000 1490001 14710000 1490001 14710000 1490001 14710000 1490001 15910000 1490001 15910000 1590001 15910000 1590001 15910000 1690001 15910000 1690001 15910000 1690001 15910000 1690001 15910000 1690001 15910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 16910000 1690001 17910000 1690001 19910000 1790001 18910000 1790001 18910000 1790001 19910000 1790001 19910000 1790001 19910000 1990001 19910000 1990001 19910000 1990001 19910000 1990001 19910000 19900001 19910000 1990001 19910000	Db		19710000	19600001	AP008208_196
1320001 1341000 1350001 1351000 1350001 1351000 1350001 1351000 1350001 1351000 1390001 1311000 1390001 1391000 1390001 1391000 1390001 1391000 1390001 1391000 1390001 1391000	Ş		19610000	19500001	AP008208_194 AP008208_195
1320001 1341000 1350001 1341000 1350001 1351000 1350001 1351000 1350001 1311000 1390001 1311000 1390001 1311000 1390001 1311000 14120001 1311000 14120001 1311000 14120001 1311000 14120001 1311000 14120001 1311000 14120001 1311000 14120001 1311000 1520001 1311000 1520001 1311000	망		19410000	19300001	AP008208_193
1320001 1341000 1350001 1351000 13500001 1351000 13500001 13510000 13500001 13510000 13600001 13510000 13600001 13610000 144100001 14410000 144100001 14410000 14400001 14410000 14500001 14510000 14600001 14610000 15600001 15610000 16600001 15610000 16600001 15610000 16600001 15610000 16600001 15610000 16600001 15610000 16600001 15610000 16600001 1561000000 16600001 1561000000000000000000000000000	Qy		19210000	19100001	AP008208_191
13200001 13410000 13500001 13510000 13500001 13510000 13500001 13510000 13500001 13510000 13500001 13510000 13500001 14010000 144100001 14410000 14500001 14410000 14500001 14410000 146100001 14410000 146100001 14410000 146100001 14610000 135100001 15510000 135100001 15510000 13500001 15510000 13500001 15510000 13500001 15510000 13500001 15510000 13500001 15510000 13500001 15510000 13500001 15510000 13500001 157100000 13500001 157100000 13500001 157100000 13500001 157100000 13500001 157100000	Дb		19010000	18900001	AP008208_189
13200001 13410000 13500001 13510000 13500001 13610000 13600001 13710000 13700001 13810000 13900001 14710000 14700001 14710000 14700001 14710000 14700001 14710000 14700001 14710000 14700001 14710000 14700001 14710000 14700001 15110000 15100001 15110000	8		18810000	18700001	AP008208_187
13200001 1311000 13400001 13510000 13500001 13510000 13500001 13710000 13600001 13110000 13600001 14110000 14200001 14110000 14400001 14210000 14400001 14510000 14600001 14710000 14700001 14710000 14800001 14710000 14800001 15110000 15100001 15110000 15100001 15110000 15100001 15110000 15100001 15110000 15500001 15110000 15500001 15110000 15600001 15110000 15600001 16110000 16600001 16110000 16600001 16110000 16600001 16110000 16700001 17110000	ф		18610000	18500001	AP008208_185 AP008208_186
13300001 13410000 13400001 13510000 13500001 13510000 13500001 13710000 13600001 13910000 14400001 14410000 14400001 14410000 14400001 14410000 14500001 14510000 14500001 14510000 14500001 15010000 14500001 15010000 15000001 15010000 16000001 15010000 16000001 15010000 16000001 15010000 16000001 17010000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000	Ş		18410000	18300001	AP008208_183 AP008208_184
13200001 13410000 13500001 13510000 13500001 13510000 13500001 13710000 13500001 13910000 13900001 14100000 14400001 14210000 14400001 14410000 14400001 14410000 14500001 14510000 14500001 14510000 14500001 14510000 14500001 15010000 15000001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15500001 15010000 15000001 15010000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000 17000001 1700000	Ф		18210000	18100001	AP008208_181 AP008208_182
13300001 13310000 13400001 13410000 13500001 13710000 13600001 13710000 13700001 14410000 14400001 14410000 14400001 14410000 14500001 14410000 14500001 14410000 14500001 14410000 14500001 14510000 14500001 14510000 14500001 15510000 15500001 15510000 15500001 15510000 15500001 15510000 15500001 15510000 15500001 15510000 15500001 15610000 15500001 15610000 15600001 15610000 16600001 16610000 16700001 16610000 16700001 16710000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 16700001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000 17500001 17510000	Ş		18010000	17900001	AP008208_179 AP008208_180
13300001 13410000 13400001 13510000 13600001 13610000 13600001 13910000 13800001 14010000 14100000 14210000 14300001 14210000 14400001 14210000 14500001 14710000 14500001 14710000 14500001 14710000 14500001 15910000 14500001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 16900001 16910000 16900001 16910000 16900001 17910000 16900001 17910000 16900001 17910000 16900001 17910000 16900001 17910000 17900001 17910000 17900001 17910000 17900001 17910000 17900001 17910000 17900001 17910000	DЬ		1000	17700001	AP008208_177 AP008208_178
13200001 13410000 13400001 13410000 13500001 13610000 13600001 13710000 13900001 13910000 14100001 14110000 14200001 14310000 14400001 14410000 14400001 14510000 14600001 14510000 14600001 14510000 14600001 15910000 14600001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 15900001 15910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 16910000 16900001 17910000 16900001 17910000 16900001 17910000 17900001 17910000 17900001 17910000	Ş		1000	17500001	AP008208_175 AP008208_176
13200001 13310000 13400001 13410000 13400001 13510000 13600001 137100000 13600001 137100000 13900001 141100000 141000001 141100000 141000001 141100000 14200001 141100000 14400001 144100000 14400001 144100000 14400001 145100000 14600001 147100000 14600001 147100000 14600001 157100000 15700001 157100000 15700001 157100000 15700001 157100000 15700001 157100000 15700001 157100000 15700001 157100000 15700001 15700000	DЬ		17410000 17510000	17300001	AP008208_173 AP008208_174
13200001 13310000 13400001 13410000 13500001 13510000 13600001 13710000 13700001 13810000 13900001 14110000 14100000 14110000 14200001 14110000 14400001 14410000 14400001 14410000 14400001 14410000 14400001 14510000 14700001 14710000 14700001 14710000 1500001 15110000 15200001 15110000 15200001 15510000 15500001 15510000 15500001 15510000 15700001 15610000 15700001 15610000 15800001 1610000 16200001 1610000 16200001 1610000 16200001 1610000 16200001 1610000 16200001 1610000 16500001 1610000 16500001 1610000 16500001 1610000 16500001 1610000 16700001 1610000 16700001 1610000	Qy		17210000 17310000	17100001 17200001	AP008208_171 AP008208_172
13200001 13310000 13400001 13410000 13400001 13510000 13500001 13710000 13700001 13910000 13900001 14910000 14000001 14110000 14200001 14210000 14200001 14310000 14300001 14510000 14500001 14510000 14500001 14510000 14500001 1510000 15100001 1510000 15500001 15510000 15500001 15510000 15700001 15110000 15600001 1510000 15700001 1510000 15700001 1510000 15700001 1510000 15600001 1510000 15600001 1610000 16200001 1610000 16200001 1610000 16200001 1610000 16500001 1610000 16500001 1610000	рb		17010000	16900001	AP008208_169 AP008208_170
1320001 13310000 13400001 13410000 13500001 13610000 13700001 13910000 13700001 13910000 13700001 13910000 13900001 13110000 14000001 14110000 14200001 14210000 14200001 14310000 14400001 14410000 14500001 14410000 14500001 14710000 14500001 1510000 15500001 15510000 15500001 15510000 15500001 15510000 15500001 15510000 15600001 15610000 16600001 16510000 16600001 16510000 16600001 16510000 16500001 16510000 16500001 16510000 16500001 16510000 16500001 16510000	γ		16810000	16700001	AP008208_167 AP008208_168
13200001 13410000 13400001 13510000 13500001 13610000 13600001 13710000 13700001 13910000 13900001 14010000 140100001 14210000 144100001 14210000 144200001 14310000 14400001 14510000 14600001 14610000 14600001 14610000 14600001 14610000 15500001 15110000 15500001 15510000 15600001 15710000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000 15800001 15810000	DЬ		16610000	16500001	AP008208_165 AP008208_166
13200001 13410000 13400001 13510000 13500001 13610000 13500001 13710000 13700001 13910000 13900001 14010000 140100001 14210000 14100001 14210000 14200001 14310000 14400001 14510000 14500001 14510000 14600001 14610000 14700001 14810000 14800001 14910000 14900001 15010000 15000001 15110000 15100001 15210000 15500001 15510000 15500001 15610000 15800001 15610000 15800001 15110000 15100001 15110000 15100001 15110000 15100001 15110000 15100001 15100000 15100001 15110000 15100001 15110000 15100001 15110000 15100001 15110000 15100001 15110000 15100001 15110000	Qy		16410000	16300001	AP008208 163 AP008208 164
13200001 13310000 13300001 13510000 13500001 13510000 13500001 13510000 13610000 13710000 13710000 139100001 14910000 140100001 14310000 14200001 14310000 14300001 14510000 14500001 14510000 14600001 14610000 14700001 14710000 14700001 14910000 14900001 15910000 15000001 15910000 15000001 15910000 15000001 15910000 15000001 15910000 15900001 15910000 15900001 15910000 15900001 15910000	Db		16210000	16100001	AP008208 161
13200001 13310000 13400001 13510000 13500001 13610000 13500001 13610000 13700001 13910000 13900001 14010000 14010001 14210000 14100001 14210000 14200001 14310000 14400001 14510000 14500001 14610000 14600001 14610000 14700001 14610000 14700001 14610000 14700001 14700000 14700001 1510000 15000001 15100000 15300001 15100000 15300001 155100000 155000001 155100000 155000001 155100000 155000001 155100000 155000001 155100000 155000001 155100000	Q		16010000	15900001	AP008208_159
13200001 13310000 13400001 13510000 13500001 13610000 13500001 13610000 13700001 13910000 13900001 14010000 140100001 14210000 14100001 14210000 14200001 14310000 14400001 14510000 14500001 14510000 14600001 14610000 14700001 14810000 14800001 14810000 14800001 15010000 15000001 15010000 15000001 15010000 15000001 15010000 15000001 15010000 15000001 15010000 15000001 15010000 15000001 15010000	Ъ		15810000	15700001	AP008208_157
13200001 13310000 13300001 13510000 13300001 13510000 13500001 13610000 13600001 13710000 13800001 13910000 13900001 14010000 140100001 14210000 14200001 14310000 14300001 14310000 14300001 14510000 14500001 14610000 14600001 14710000 14700001 14710000 14800001 14910000 14900001 15010000 15000001 15010000 150100001 15310000 150100001 15310000	Ş		15610000	15500001	AP008208_155 AP008208_156
13200001 13310000 13400001 13510000 13500001 13610000 13500001 13610000 13700001 13910000 13900001 13910000 13900001 14010000 14010001 14210000 14200001 14310000 14400001 14510000 14500001 14610000 14600001 14610000 14700001 14810000 14800001 14810000 14800001 14910000 14900001 15010000 14900001 15010000 14900001 15010000	Db		15410000	15300001	AP008208_153 AP008208_154
13200001 13310000 13300001 13510000 13300001 13510000 13500001 13610000 13500001 13710000 13700001 13910000 13900001 14010000 140100001 14210000 14200001 14310000 14300001 14510000 14600001 14610000 14700001 14610000 14700001 14810000 14700001 14810000 14700001 14810000	Ş		15210000	15100001	AP008208_151 AP008208_152
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13510000 13500001 13710000 13700001 13910000 13800001 13910000 13900001 14010000 14100001 14210000 14200001 14310000 14300001 14410000 14400001 14510000 14600001 14610000 14700001 14710000	Db		15010000	14900001	AP008208_149 AP008208_150
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000 13600001 13710000 13700001 13910000 13900001 13910000 13900001 14010000 140100001 14110000 14200001 14310000 14300001 14310000 14300001 14510000 14500001 14510000	φ		14810000 14910000	14700001	AP008208_147 AP008208_148
13200001 13310000 1340000 13410000 13400001 13510000 13500001 13610000 13500001 13610000 13700001 13810000 13700001 13910000 13900001 14010000 140100001 14010000 14100001 14210000 14300001 14310000 14300001 14310000	Ü		14610000	14500001	AP008208_145 AP008208_146
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000 13600001 13710000 13700001 13910000 13900001 13910000 13900001 14010000 141000001 14210000 14200001 14310000	: .5		14510000	14400001	AP008208_143 AP008208_144
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000 13600001 13710000 13700001 13810000 13900001 13910000 13900001 14010000	? 5		14310000	14200001	AP008208_141 AP008208_142
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000 13600001 13710000 13700001 13810000 13800001 13910000	ļ .		14110000	14000001	AP008208_140
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000 13600001 13710000	Ş		13910000	13800001	AP008208_138
13200001 13310000 13300001 13410000 13400001 13510000 13500001 13610000	Db		13710000 13810000	13600001 13700001	AP008208_136 AP008208_137
13200001 13310000 13300001 13410000	Ş		13510000	13400001	AP008208_134 AP008208_135
	us-09		13310000 13410000	13200001 13300001	AP008208_132 AP008208_133

- 126		126	δ
A 105863	ATGCTGCACGATTCATCAGCAATGTGATAGATTGTGATTTATGCTTCAACTCCCATGCAA	105922	Db
- 126		126	γQ
T 105923	TTATATGCCTCGCTTAATTCTCCCTTGGTATTGATTGGATTATTGAATTTTGAGTACAAAT	105982	ממ
- 126		126	Ş
- 126 A 105983	ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr	109 106042	qq VQ
r 108 A 106043	TrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSer 	89 106102	QQ VQ
	CATTTCATACTTGCGACTTAATCGGGTTCATGGTGCAGCTCTTATCTGCTGTCAATTGC	106162	42 42
E 88	GAACAGGCTGTAACGATTATATTTGTTACATGTAGGGGGGCTGTATTTTAAGIATTATCTTT	106222	\$ B
00		81	ρ
T 106223	GTAAGGCGTCATACGGCTTAATTGGGTGAGGTTGTTACAGAAGCATTCAATCTGTGCAAT	106282	Дb
- 81		81	γQ
T 106283	$\tt GTCATTACTTCACTGGAAAAGGGATATTTGTTAATTGTGATGGTTGGGACTGTTTCCT$	106342	Db
- 81		81	Q
T 106343	CGGTTGTGTGTACTACGTAACCATGCTAAAACTAGTGACACGTTCAGTTAGAAGAGGTTT	106402	מם
- 81		81	Q
T 106403	ATCTGCTTGATTTGAGTGACCATCTAGTTATAGGTTTTTGGAAGTGTTTTTAGGACTAAAT	106462	ДЬ
- 81		81	γQ
C 106463	TTGATGGATTAAAGTAATTTTGCAATGGCCCATCAGGCAGATGCGTGTGTGCGACTGCAC	106522	Db
- 81		81	Qγ
A 106523	${\tt TGGATAATATGTGCTTTTGTTCTTTTATTAGGATTCGTTGGTCTGTTCTTGTGAGGCA}$	106582	фd
- 81		81	γQ
C 106583	CGTTCCGTACTGTCCTCGATATTCAGAAAGCTACTTTTGCTAGTAACTGTTGTTGTTC	106642	Дb
- 81		81	Ş
T 106643	TTCGACTTCAACCCCCTCGACTCCGTCTGGCTCGACACCCCCAAGGTCAGAACCACCCCT	106702	DЬ
- 81	LeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLys	67	γQ
Ċ 106703	cccaaarcaAcacAcacacacacacacacacacacacaca	106762	DЬ
0 66	ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrPro	47	δ
	GAGGCGATGGCGCGCGGATTTCGACTACCGGAAGCTCTCGGGGATAATAATC	106816	Db .
e 46	AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle	27	9
C 106817		106876	Дb
r 26	SerValThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr	7	á
	-5 (1-546) x AP008208_348 (1-110000)	09-651-651-	us-

::: 103714 CAGCTTGAGAAGTG-AGTTTGCAATTTTGTATGCGCCAGTGCTGCTACTTTGTAAATTGT	239 alGluAlaIleLy8SerThrLeuSerGlyValThrPheGlyLeuProValSerGlu 257 ::: :::
103774 GATGGTACTCTGTTTAAAACCATAAAGGATTGGGACCCTCAGAGCATAGGGCTTATCC	104842 GTTATTTGTTAGTGTCATGCCATTTTTCCTTGCTTTCAGGTGCACCTCTTCTTGGTTCTA 104783 Qy
	239
103834 ACATCCAGCATGGAGTGTGGAAAGCCAACTCTTTTGTCATTTTCTGCTAGGGAGGTTTCA	1811eHisAlaTyrPheAlaVal
	204 heLeuGluTrpLeuArgLeuGluIleAlaProLygHisTyrLeuLygTrpLeuAgpGlnH 224
ATCTATGATTAAGATTTTGCTTCC	184 euArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrP 204
TIG	176
lei	175
	175 175 pb 105202 CTTTTCATTTTTTTTTGACATCCTTTTCACTTGAATTAAAAGTTGTTTTCTTCAAGTTTA 105143 Qy
104182 TGTTTÄÄTGCATTTGGTTĆÄTČTTTÄTĞĞČTČÄTĞCČČTTCTČÄGAATATTĞCÄÄÄGCTĞ 104 283 9PABNThrSerTrpThrHisPheSerGlyGlyAlaAlaLyBLyBABPLyBA 300	CATGCAAGCTGAAATTGATAATTTTTTTTTGCGGGGGAAATTGATAAGCTTTTACTTGCTT 1
263 euS	105322 TCACGCATAACTAAGTACTAGTATCAGAAATACAAAGGTTTGGTTGCCTTTGGTGTG 105263 Qy
258GlyThrAlaArgLeuL	175
104302 GTTGAATCTGTACTTAGCTATATATTGCCAAAATTGTTACATTATATGCCATCTTATAAT	175
	TCACTGCCCATTGGCTTTCGATAGTATTTGATGTTATTACTAATAATTGGTGTAAAAACA 105383
257	175
104422 ACTTCTCATAGCCGATTCGCACGGCCAGGTTGTGTGCCACAACCATGCTAGTTTTAGAGT	169 UTYZPHEHIBLYSLEULIYS
104482 CTTCTACACGTGCAAGGGAACCTTTTAGTACTGTTGGAGTCTTGGAGACAACAATGCCTT	CATTATCGCGGTTCCATACGATTGGAGGCTGCCCCCTTCGATGCTTGAGGAGAGGGATCT
	alleValÀlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLe 169
104542 TTGCCCCTTGTTCTTTGTCCCTGCCCTTTCTGAGAGTACTGTTCTGGTAACCTCTCAGCC	129
257	AGCCATAAAAAAATCTTTCTTACTAATTTGGTTTTATTGGCCAAGTTTTCAGGTCCTCT
104602 GTCCAATACTGAATAGTTTTTATTTCCTTTTTGGATTCACTAGGTTTTTGTGGTGATTCTT	127GlyProLe 129
257	ATGTTCATCGGTAAGCTGTAGAATTCCCCCATCTCGTTCCTCAAAGAATAAAAAAATGATT
104662 TGATATTTATACATTTTTCCTCCAACATTGTTAGTGTTGAATTTAAGTATGTTTGGTT	126
1	743
104722 GCCTTTATGAATTATATATTTTCAATAATGTGTCCTCTGCCCTCAGGAGGCTATATTTC	126 126 Db
257	105862 TGGAAAAAAAAACCATCGATGGCAAGTGAGAGTGATAAAATTTGACATCAAGCTTTTGT 105803 Qy

Дb

ð

Ś

밁

음 성 음 성

ş

8 상

망

Ś

용왕

Db

8 8 8

ફ

B 8

	TATTTTTTTTTGCTTTAATATGAAAAGATATTTGTAGTTCGCAGACTCATTTTCATGGC 10	103415 GT-ARGATTGGGATTTTCTTTGATTGTTAAGTTTCTACCTTTAGCCTGCTTTGAACCAC 10357 416	382
3600001 3700001 3700001 39000001 39000001 4000001 42000001 43000001 45000001 46000001 46000001 46000001	1300001 141000 1500001 151000 1500001 161000 11600001 171000 11700001 191000 1800001 201000 2100001 221000 2100001 231000 2300001 251000 2400001 251000 2500001 251000 2500001 251000 2500001 251000 2500001 271000 2500001 301000 3300001 331000 3300001 331000 3300001 331000	RESULT 11 APO08208 349/c WPCOMMENT Sequence split into 360 fragments LOCUS AI Fragment Name Begin End APO08208 000 1 100001 210000 APO08208 001 100001 310000 APO08208 003 300001 410000 APO08208 004 400001 510000 APO08208 005 500001 610000 APO08208 005 500001 710000 APO08208 006 600001 710000 APO08208 009 900001 910000 APO08208 009 900001 1110000 APO08208 001 1100001 1110000 APO08208 001 1100001 1110000 APO08208 001 1100001 1110000	Db 102576 TTGTTGTGGCTAATAGAATTATTGACTGTTTC Qy 487
		AP008208 Accession AP008208	GTGGCTAATAGAATTATTGACTGTTTCCTTGTAGCATATCACAATGTTAATGTGC 102517

95 SS BP .

B & B &

8 8 8 8 8

밁

১ ৪ ১

Ś

뭥

. 9 Q

В

8 B 8 B 8 B 8 B 8 B 8 B 8

ફ

APOOB208 -052 APOOB208 -053 APOOB208 -054 APOOB208 -055 APOOB208 -055 APOOB208 -055 APOOB208 -055 APOOB208 -061 APOOB208 -061 APOOB208 -062 APOOB208 -063 APOOB208 -065 APOOB208 -067 APOOB208 -067 APOOB208 -076 APOOB208 -077	AP008208_049 AP008208_050 AP008208_051
	900001 100001
5310000 55110000 55110000 56110000 66110000 66110000 66110000 66110000 671100000 6711000000 6711000000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 671100000 6711000000 671100000 671100000 671100000 671100000 671100000 671100000 6711000000 6711000000 6711000000 6711000000 67110000000000	5010000 5110000 5210000
APO08208 125 APO08208 127 APO08208 127 APO08208 131 APO08208 133 APO08208 133 APO08208 133 APO08208 133 APO08208 133 APO08208 134 APO08208 134 APO08208 144 APO08208 144 APO08208 144 APO08208 144 APO08208 144 APO08208 144 APO08208 155 APO08208 156 APO08208 157 APO08208 157 APO08208 167 APO08208 167 APO08208 177 APO08208 187 APO08208 187 APO08208 187 APO08208 189 APO08208 189 APO08208 189 APO08208 189 APO08208 199	NNN
12500001 12700001 12700001 12700001 131000001 131000001 135000001 135000001 135000001 135000001 135000001 136000001 145000001 145000001 145000001 145000001 145000001 155000001 155000001 155000001 155000001 155000001 155000001 157000001	2200001 2300001 2400001
12710000 12710000 12710000 13110000 13110000 13110000 13110000 13110000 13110000 13110000 13110000 13110000 14110000	

Db 6042 AGGCCTGACAGTGGTCTTTCTGCAATTACAGAGTTAGACCCTGGTTATAACTGGTAAA 5983	109 ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 12	Db 6102 TGGCTCAAATGCATGCTCGACCCTTACAACCAGACGGATCATCCAGAGTGCAAGTCA 6043	Qy 89 TrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSer 108	Db 6162 CATTITCATACTTGCGACTTAATCGGGTTCATGGTGCAGCTCTTATCTGCTGTCAATTGC 6103	Qy 82	Db 6222 GAACAGGCTGTAACGATTATATTTGTTACATGTAGGGGGTCATATTTAAGTATTATCTTT 6163	Qy 81 81	Db 6282 GTAAGGCGTCATACGGCTTAATTGGGTGAGGTTGTTACAGAAGCATTCAATCTGTGCAAT 6223	Оу 81 81	Db 6342 GTCATTACTTCACTGGAAAAGGGATATTTGTTAATTGTGTGATGGTTTGGGACTGTTTCCT 6283	Qy 81 81	Db 6402 CGGTTGTGTGTACTACGTAACCATGCTAAAACTAGTGACACGTTCAGTTAGAAGAGGGTTT 6343	Ογ 81 81	Db 6462 ATCTGCTTGATTTGAGTGACCATCTAGTTATAGGTTTTTGGAAGTGTTTTTAGGACTAAAT 6403	Qy 81 81	Db 6522 TTGATGGATTAAAGTAATTTTGCAATGGCCCATCAGGCAGATGCGTGTGTGCGACTGCAC 6463	Оу 81 81	Db 6582 TGGATAATATATGTGCTTTTGTTCTTTATTAGGATTCGTTGGTCTGTTCTTGTGAGGCA 6523	, Qy 81 81	Db 6642 CGTTCCGTACTGTCCTCCTGATATTCAGAAAGCTACTTTTGCTAGTAACTGTTGTTC 6583	Qy 81 81	Db 6702 TTCGACTTCAACCCCCTCGACTCCGTCTGGCTCGACACCGCCAAGGTCAGAACCACCCCT 6643	Oy 67 LeuAspPhcAsnProLeuAspLeuValTrpLeuAspThrThrLys 81	cccci	Qy 47 ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrPro 66	TCTCGGGGA	Qy 27 AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle 46	ph 6876 regeregeeregeeregeeregeeregeeregeerege	erValThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr 	10000)	15 GADS:	tch: 50.03% Indels:	29.50%	nt Scores: 7.3e-116 Length:	08208_196 19600001 19	195
Qy	Db	8	당 5	Ş 5	\$ 5	Ü		? 5	ę		D 4	2 1	F (Q	라 !	• •	Db	Q	da d	VQ V	마 4	5 8	3 8	?	B 1	9	da -	o V	Db	Qy	Db	Ş	Db	Q	Db	99
224 isIleHisAlaTyrPheAlaVal 231	4962 TTCTGGAATGGTTGAAACTAGAAATCGCTCCCAAGCATTACATCCGATGGCTTGACGAAC 4903		TTCGAGGAGGGCCTTCTTTAGTGTTTGCTCATTCCATGGGTAATAATGTGTTTTCGCTACT		176	TACAATACTTGATAATGACACGGATAATGTCGGAAAATTCATTGACGTGAAATATTGACGGAAAATTGACGTGAAATATGACGGAAAATTAGATGACGAAAAATTAGACG	TADA & ADDOTTOTT A COTTOTT A CACOTOTT A CACO	CITITCHIIIIII IHIGHAHICCII I LANCI IGAAN IAAAAAA I AAAAAAAAAAAAAAAAAAAAAA	על הנה בל מינה בל הנה הנה בל הנה הנה בל הנה		TTOSTTTACTTTASA TARRITA A ARRENDERTTTTTTTTTTACTTA A TARRITA A CTTTCACTTA		TCACGCATAAGTAGTAGTAGTAGTATGAGAAATACAAAGGTTTGGTTGCCTTTGGTGTG	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CTTCTAAATTGTATCAACCAGAATATACTCACTTTGTTTACCTTCCATACCCTCAAAAAA		5442 TCACTGCCCATTGGCTTTCGATAGTATTTGATGTTATTACTAATAATTGGTGTAAAAAACA 5383	175 175			CATTATCGCGGTTCCATACGATTGGAGGCTGCCCCCTTCGATGCTTGAGGAGAGGGATCT	alleValAlaValProTyrAspTrpArqLeuSerProThrLysLeuGluGluArgAspLe 169	120		AGCCATAAAAAAATCTTTCTTACTAATTTGGTTTTATTGGCCAAGTTTTCA		5742 ATGTTCATCGGTAAGCTGTAGAATTCCCCCATCTCGTTCCTCAAAGAATAAAAAAATGATT 5683	126 126	5802 GAGTTAATAATGGATATTGCCATGAGAATAATAGCATTAGCTAGGTTACATTGCAAATTC 5743	126 126	5862 TGGAAAAAAAAACCATCGATGGCAAGTGAGAGTGATAAAATTTGACATCAAGCTTTTGT 5803	126 126	5922 ATGCTGCACGATTCATCAGCAATGTGATAGATTGTGATTTATGCTTCAACTCCCATGCAA 5863	126 126	5982 TTATATGCCTCGCTTAATTCTCCCTTGGTATTGATTGGATTATTGAATTTTGAGTACAAAT 5923	126 126

GTCCAATACTGATTGTCCCTGCCCTTTTTGGATTCACTAGGTTTTGTGGTGATTCACCTGTGCTCTTTTGGATTCACTAGGTTTTTGTGGTGATTCACCTGTGTGATACCTCTCAGGCCTTTTAGTACTGTTTTGTGGTGATTCACCTGTGTAACCTCTCAGGCCTTTTAGTACTGTTTGGAGTCTTTGGAGTCTTTAGAGTTTTTAGAGTTTTTAGAGTTTTTAGAGTTTTTAGAGTTTTTAGAGTTTTAGAGTCTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTAATAGAGTTTAAAAATTTGCTTTAATAGAATTTGCAACAATTTGCAACAATTTGTTTAATGCCATCTAAAAATTTGCTTTTAATGCATTAATAGACAACAATTTGTTTAATGCATTAATAGAATTTGCTTTAATGAGAAAAAATTTGCTTTTAATGAGAAAAATTTGCTTTTAATGAGAAAAATTTGCTTTAATGAAAAATTTGCTTTTAATGAGAAAAAAAA	
Qy 383 "YEHIANDADDED FOILS PROADTED TO 394 3535 TRARCTTTGTGARCTCAGGTACTACCAGGGTACTCCAGTTCTTAATCCCCTCACACCC 3476 Qy 395 TEDGLIANDED FOILS (MARRIVAL PROCED TO TRANCAGGTTCTTAATCCCCTCACACCC 3476 Qy 415 411 111	Db 3834 ACATCCAGCATGGAGTGTGGAAAGCCAACTCTTTTGTCATGCTAGGGAGGTTTCA 3775 Qy 358 AspGlyThrLeuPheLy8AlaIleGluAspTyrAspProAspSerLy8ArgMetLeuHi8 377

. 당 왕

음 성 음

D 04 D 04 D

B 8

음 성 음

멍

9 9 9 9 9 9

8 8 8 8

```
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AP004120/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
(E-mail: Basakkenias affrc 90.jp, URL: http://rgp.dna.affrc.90.jp/, Tel:81-298-38-7441, Fax:81-298-38-7469)
On Jun 1, 2004 this sequence version replaced gi:34740243.
Genes were predicted from the integrated results of the following: GENSCAN (http://CCR-081.mit.edu/GENSCAN.html), FGENESH (http://www.softberry.com/), GeneMark.hmm (http://www.biology.gatech.edu/GeneMark/), GlimmerM (http://www.tigr.org/tdb/glimmerm/glmr_form.html), RiceHMM (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://splobin.cse.psu.edu/html/docs/siin4.html), gap2 (http://www.tigr.org/software/glimmerm/), BLASTN and BLASTN. The genomic sequence was searched against NCBI NonRedundant Protein database, nr (ftp://ncbi.nlm.nih.gov/blast/db) and the cDNA sequence database at RGP or DDBJ. Protein homologies of the coding regions were searched against NCBI NonRedundant Protein database with BLASTP. ESTs represent the identified cDNA sequences using BLASTN with the corresponding DDBJ accession no. and RGP clone ID. Full-length cDNAs represent the identified cDNA sequences using BLASTN with the corresponding DDBJ accession no.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryza sativa (japonica cultivar-group)
BAC clone:OJ1293_E04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (29-AUG-2001) Takuji Sasaki, National Institute of Agrobiological Sciences, Rice Genome Research Program; Kannon 2-1-2, Tsukuba, Ibaraki 3602, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sasaki, T., Matsumoto, T. and Yamamoto, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sasaki, T., Matsumoto, T. and Yamamoto, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Published Only in Database (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone:OJ1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AP004120.3 GI:47847857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCACATGTGAAGTACATAACCTACTTTGAAGATGCTGAGAGCATTCCGGGATGGAGAAC 2337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aProArgValLysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACAAAGATGAATGTCGACCACCATGTAGGCCAGGGCATACTCCCAAACATGACGAGGAC 2397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTTCCTGCTTTGTACATCCTACTGTTTTTGCAGGCAGAACATGATGGATCTGATTTACA 2457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGTTGTGGCTAATAGAATTATTGACTGTTTCCTTGTAGCATATCACAATGTTAATGTGC 2517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCATGTGCCTAGTGATATGATCCTCAGCAGAGGAGTTTGAGGCCTGTTTATTAATTTGTT 2577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGGTGCAAGAACTGGCTTGGGCCAAAAGTGAACATAACTAGGGCTCCGCAGGTATTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCCGTCTGGGAGCTTGATAAAGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rAlaValTrpGluLeuAspLysSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 118192)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sativa nipponbare (GA3) genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ¥04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GlnProGluHisAspGlySerAspValHi 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      chromosome 2, BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLN 02-JUN-2004 chromosome 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kannondai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                486
```

밁 Ś 밁 á 밁 ঠ 밁 Ś 밁 á

δ

문 S

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A gene with identity or significant homology to a protein is classified based on the protein name to indicate the homology leve such as same name, 'putative' and 'like protein'. A gene withou significant homology to any protein but with full-length cDNA or EST homology (covering almost the entire length of partial sequence) is classified as an 'unknown' protein. A gene predicted by two or more gene prediction programs is classified as a 'hypothetical' protein according to IRCSP standard. A gene predicted by a single gene prediction program is also classified a probable 'hypothetical' protein and is included as a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 miscellaneous feature of the sequence.

miscellaneous feature of the sequence.

The orientation of the sequence is from -21M13 to M13rev of the BAC clone. This sequence of OJ1293_E04 clone has an overlap with OSJNBa0053111 (DDBJ: AP005691) clone at 5' end and with P0643F09 (DDBJ: AP005111) at 3' end. The sequence was generated by combining Monsanto and RGP-Japan sequencing data. Detailed information on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    http://rgp.dna.affrc.go.jp/GenomeSeq.html.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           overlap and assembly quality together with annotation of this is available at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(6482..6<u>9</u>88,7071..
8501..8573,8672..9312)
/gene="OJ1293_E04.2"
/translation="MEEEGEGLCEIARLPEELLSAAISRASPRDACHAAAVSPAPRAA
ADSDAWASFLPRNLEDLADGELSPAPASKKELFLRLSDGPYLLEDRLMSMWLDRETG
AKCYMLSARSLVIINGOTPHYWRWIPLTDSRRFAEGAELLDVCWLEIRGRIHSKWLSRS
STYAAYMVFKIADEFYGLDAPFQEASVSLGGRGSTKIVCVQSYDSEDEEVPENYWPMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCKMLSGNSNYAAYIVFVVAEDSCGLASVWVATVGVGGRQSTRQVCLDSSNRNDYYYE
GEIEVPQDGSVILPQERADGWMELELGEFYNQEGNNQGEVCFSLVKPKAGRWLSNGGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="0J1293_E04.1"
join(<1863. 1936,2024. .>2468)
/gene="0J1293_E04.1"
/note="start and end point are not identified"
join(1863. .1936,2024. .2468)
/gene="0J1293_E04.1"
                                                                                                                                                                                                                                                                                                                                                                                                       /note="supported by full-length cDNA(s):
join(11953...12242,12368...12486,13292.
/gene="OJ1293_E04.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="OJ1293 E04.3"
join(11875. .12242,12368. .12486,13292.
/gene="OJ1293_E04.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8501. .8573,8672. .9
/gene="OJ1293_E04.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="BAD21651.1"
/db_xref="GI:47847858"
                                                                                                                                                                                                                                   phloem-specific lectin"
                                                                                                                                                                                                                                                           contains full-length cDNA(s):
                                                                                                                                                                                                                                                                                             /note="supported by full-length cDNA(s):
join(11964: 11242,12368: 12486,13292: .
/gene="011293_E04.3"
/note="contains EST(s): AU092429(C50563)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="transposase-like"
11875. .13972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VIQGIEIRPKIS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="predicted by GeneMark.hmm etc."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1863. .2468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol type="genomic DNA"
/cultivar="Nipponbare"
/db_xref="taxon:3947"
/chromosome="2"
                                                                                                                   /protein_id="BAD21652.:
/db_xref="GI:47847859"
                                                                                                                                                    /product="F-box family protein-like"
/protein id="BAD21652.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         join(6482. .6988,7071.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MELRQNCVQKLGDSKVPWKFVPDFPFSEVVEFLKGYRVEVCGKI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone="0J1293_E04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Oryza sativa
                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .9312)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .7653,7919.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .7653,7919.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (japonica cultivar-group)"
                                                                                                                                                                                                                                                                 AK060823, AK098981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .8032,8112.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .8032,8112. .8419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .13972)
                                                                                                                                                                                                                                                                                                                                                                                                                                              .13962)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AK060823"
                                                                                                                                                                                                                                                                                                                                                                                     AK098981"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homology level
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .8419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   without
```

|GPLLRRARRRDRRLVLDEGVTVPQKRTDEWMELEMGEFINEEGEDGEVCFSLMETK

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SgS
                                                                                                                                                                                                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /COGOOD STATE=1
/COGOOD STATE=1
/COGOOD STATE=1
/product="glutathione reductase"
/protein_id="BaD21653.1"
/protein_id="BaD21653.1"
/db_xref="Gl:47847860"
/translation="MARKMILKDEEVEVANTDGGSYDYDLFVIGAGSGGVRGSRTSASF
/translation="MARKMILKDEEVEVANTDGGSYDYDLFVIGAGSGGVRGSRTSASF
/translation="MARKMILKDEEVEVANTDGGSYDYDLFVIGAGSGGVRGSRTSASF
/translation="MARKMILKOPGGNGTCVIRGCVFKILVYGSSFRGEFEDAKNFGWEIN
GAKVAICELPFHPISSDWQGGHGGTCVIRGCVFKILVGSSFRGVTLLGGGYIAVEFASI
GRYTAKHILIATGSRAQRVNIPGKELAITSDEALSLEELFKRAVILGGGYIAVEFASI
WKGMGAHVDLFVRKELFLRGFDDEMRTVVASNLEGGGILHFGTMLSELSKTADGIKV
VTDKGEEIIADVVLFATGGTMSQGRLMFLEAAVEVDNIGAIKVDDYSRTSVPNIWAVG
DVTNRLNLTPVALMEATCFSKTVFGGQPTKPDYRDVFCAVFSIPFLSVVGLSEQQALE
EAKSDVLVYTSSFNPWKNSISKRQEKTVMKLVVDSETDKVLGASMCGPDAPEIIQGMA
VALKCGATKATFDSTVGIHPSAAEEFVTMRTLTRRVSPSSKPKTNL"
2943891
2943891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(16132. .16272,16375. .16439,16593. .16662,16996. .1.
17165. .17368,18290. .18363,18462. .18545,19079. .19166,
19260. .19341,19675. .19748,19971. .20078,20180. .20244,
20814. .20927,21141. .21240,21337. .21390,21469. .21564)
/gene="OJ1293_E04.4-1"
/note="contains_EST(s): D22281(C10676),AU102120(C10676)
contains_full-length_cDNA(s): AK100446,AK058270"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15858. .20860

/gene="OJI293_E04.4-2"

joint<15858. .15901,16996. .17067,17165. .17368,18290. .18363,

joint<215858. .18545,19079. .20078,20814. .>20860)

/gene="OJI293_E04.4-2"

/note="supported by full-length cDNA(s): AK066398"

15858. .20860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      join(15841. .\overline{1}5901,16106. .16272,16375. .16439,16593. .16662,
16996. .17067,17165. .17368,18290. .18363,18462. .18545,
19079. .19166,19260. .19341,19675. .19748,19971. .20078,
20180. .20244,20814. .20927,21141. .21240,21337. .21390,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             join(15841. .15901,16106. .16272,16375. .16439,16593. .16662, 16996. .17067,17165. .17360,18290. .18363,18462. .18545, 19079. .19166,19260. .19341,19675. .19748,19971. .20078, 20180. .20244,20814. .20927,21141. .21240,21337. .21390,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="OJ1293_E04.5"
complement(join(<27410. .27558,29301. .>29382))
/gene="OJ1293_E04.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  probably
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21469. .21825)
/translation="MDLLPLVTLLLLAHAAAWVAWQAAARRRRATCYLLDYACHKPSD
DRKVTTELAGAIIERNKRLGLPEYRFLLKVIVNSGIGEHTYSPRNVLDAREDCPTLRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="start and end point are not identified" complement (join (27410. .27558,29301. .29382)) /gene="001293_E04.5" /note="predicted by GENSCAN etc."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (27410.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        non-coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="OJ1293_E04.4-2"
/note="contains full-length cDNA(s): AK066398
                                                                                                                                                          /gene="OJ1293_E04.6"
/note="contains full-length cDNA(8): AK107210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="supported by full-length cDNA(s): AK100446"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="0J1293_E04.4-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="0J1293_E04.4-1"
oin(15841. .15901,161)
                                                                                                                  /codon_start=1
/product="putative fatty
                                                                                                                                                                                                                           'gene="OJ1293_E04.6"
note="supported by full-length cDNA(s):
                                                                                                                                                                                                                                                                                       /gene="OJ1293_E04.6"
31777. .33484
                                                                                                                                                                                                                                                                                                                                                                                                                                product="hypothetical protein"
protein_id="BAD21654.1"
                                            protein_id="BAD21655.1"
/db_xref="GI:47847862"
                                                                                                                                                                                                                                                                                                                                                             'translation="melrshriymplymlemkwrgvrvrmralstcgtptpaasagqs
,caenrttptgnssshrgrllhrrprlsrqtd"
                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="GI:47847861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ng transcript inactive due to including stop codon(s) in CDS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29382)
                                                                                                                  acid
                                                                                                                  elongase 3-ketoacyl-CoA
                                                                                                                                                                                                                                          AK107210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .17067,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                     밁
                                                                                                                Ś
                                                                                                                                                                  밁
                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x AP004120 (1-118192)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66259
                                                                     65719 GAACAGGCTGTAACGATTATATTTGTTACATGTAGGGGGTCATATTTAAGTATTATCTTT 65660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66313
                                                                                                                                                                                                                                                                                                                                                                  65899
                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGATAATATATGTGCTTTTTGTTCTTTTATTAGGATTCGTTGGTCTGTTCTTGAGGCA 66020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCGACTTCAACCCCCCCCGACTCCGGTCTGGCTCGACACCCCCAAGGTCAGAACCACCCCCT 66140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGGGTTCGCGTCGACGCAGCTGCGCGCGTGGTTCTGGATTGCCCCTACTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAGGCGATGGCGCGCGGATTTC----GACTACCGGAAGCTCTCGGGGATAATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGGTGGCGGTGGCGGTGGCGGTGGCGGTGGCGGCCGTGGGGGCGGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ServalThrAlaSerPheThrVallleAlaValPhePheLeuIleCysGlyGlyArgThr
                                                                                                                                                                                                                                                                 GTCATTACTTCACTGGAAAAGGGATATTTGTTAATTGTGTGATGGTTGGGACTGTTTCCT 65780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTTCCGTACTGTCCTCCTGATATTCAGAAAGCTACTTTTGCTAGTAACTGTTGTTC 66080
                                                                                                                                                                  GTAAGGCGTCATACGGCTTAATTGGGTGAGGTTGTTACAGAAGCATTCAATCTGTGCAAT 65720
                                                                                                                                                                                                                                                                                                                                                               CGGTTGTGTGTACTACCTAACCATGCTAAAACTAGTGACACGTTCAGTTAGAAGAGGTTT 65840
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCTGCTTGATTTGAGTGACCATCTAGTTATAGGTTTTTGGAAGTGTTTTTAGGACTAAAT 65900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGATGGATTAMAGTAATTTTGCAATGGCCCATCAGGCAGATGCGTGTGTGCGACTGCAC 65960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALDEMDDFFDDAVAAVLARAAVSPRDVDLLVINVGSFSPSPALADRVVRRFGLRDDVM
AYNLSGMGCSACLVSVDLARRVMLTRRFTMALVLTBESCAPMWTGTDKSMMLGNCLF
RCGGAAALTENDPAFRSAKMELRCLVRAHIGAHDDAHAAVHREDADGRILGSVDKA
LPKAAVRAFTENLQRLAPRILPAGELARFAARLLLRKLLRRKAAAGAAAKRILGSVDKA
HFCLHPGGTAVIEAVRKSLGLDSYDVEPARMALHRWGNTSASSLWYVLSYMEAKRRLN
AGDRYLMVTFGSGFKCNSSYWVVTKDLADAGAWEDCIHDYPPANLVNPYMEKFGWVND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="0J1293_E04.7"
35504. .35704
/gene="0J1293_E04.7"
/note="hypothetical ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSQGQGGAFPFF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.98e-116
1483.50
19.50%
29.50%
26.17%
50.03%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .35704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118192
401
51
81
1001
LeuLeuSerAlaValAsnCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66314
                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66200
                                                                                                                                                                                                                      18
```

AGCÁTCGÁGGTTCC	64579 AGTATTTTGGTGCTCATAGTCCTTTTAACTGCAGGTTAACTTTTGAAACTGCATTGAAAC	Dt.
320 leIleAsnIleGluIleProSerThr-SerVal	Db 64639 TACAATACTTGATAATGACACGGGGATATGTCGGAAATTCATTGTTGCATGCGGAAAGAT 64580 Qy	? F
	175	S
	Db 64699 CTTTTCATTTTTTTATGACATCCTTTTCACTTGAATTAAAAGTTGTTTTCTTCAAGTTTA 64640	맖
283 SPASMINISETIIDINTHIBENG	Qy 175 175 Db	ð
TGTTTAATGCATTTGGTTCATCTTTATGGCTC	CATGCAAGCTGAAATTGATAATTTTTTTTTGCGGGGGAAATTGATAAGCTTTTACTTGCTT 64700	B 4
263 euSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyA 283	Db 64819 TCACGCATAACTAAGTACTAGTATCAGAAATACAAAGGTTTGGTTGCCTTTGGTGTG 64760 Qy	? ;
TATATTGTCTCTTATGCATCTAAAATTGCTTTTATTGTTTTCAG	175 175	. . §
	Db 64879 CTTCTAAATTGTATCAACCAGAATATACTCACTTTGTTTACCTTCCATACCCTCAAAAAA 64820 Qy	맖
257 257	QY 175 175	& 8
63859 CAGTTAGGGAGGTTGTTTTGGTGCATGTATAAATTCTCTACCTTCGAGTGATACACATGT 63800	175 175	. হ
257 257	64940	망
63919 ACTTCTCATAGCCGATTCGCACGGCCAGGTTGTGTGCCACAACCATGCTAGTTTTAGAGT 63860	Qy 169 uTyrPheHisLysLeuLys	Ş
	65000	ДD
63979 CTTCTACACGTGCAAGGGAACCTTTTAGTACTGTTGGAGTCTTGGAGACAACAATGCCTT 63920	Qy 149 alleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLe 169	Q
	65060	da
64039 TTGCCCCTTGTTCTTTGTCCCTGCCCTTTCTGAGAGTACTGTTCTGGTAACCTCTCAGCC 63980	Oy 129 uSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAl 149 Db	٠ ي
257	Db 65179 AGCCATAAAAAAATCTTTCTTACTAATTTGGTTTTATTGGCCAAGTTTTCAGGTCCTCT 65120 Ov	da
GTCCAATACTGAATAGTTTTATTTCCTTTTTGGATTCACTAGGTTTTTGTGGTGATTCTT	Qy 127GlyProLe 129	γQ
257	Db 65239 ATGTTCATCGGTAAGCTGTAGAATTCCCCCATCTCGTTCCTCAAAGAATAAAAAATGATT 65180	Дb
64159 TGATATTTATACATTTTTCCTCCAACATTGTTAGTGTTGAATTTAAGTATGTTGTTGGTT 64100	Qy 126 126 pb	γo
257	Db 65299 GAGTTAATAATGGATATTGCCATGAGAATAATAGCATTAGCTAGGTTACATTGCAAATTC 65240	DЪ
CTTTTATGAGAGGCTATATTTTCAATAATGTGTCCTCTGCCCTCAGGAGGCTATATTTC	Qy 126 126 Ph	δ
257	Db 65359 TGGAAAAAAAAAACCATCGATGGCAAGTGAGAGTGATAAAATTTGACATCAAGCTTTTGT 65300	da
64279 CTGARACKGTTAAAGCTGCTCTTTCTGGAGCAACATTTGGTCTTCCAGTCAGCGAGGTCA 64220	Qy 126 126 nh	Q
alGlualaTleIveSerThrLeuSerGlvValThrPheGlvLeuProValSerGlu	65419 ATGCTGCACGATTCATCAGCAATGTGATAGATTGTGATTTATGCTTCAACTCCCATGCAA 65360	da Db
	Qy 126 126	Ş
AIRIACAIRCII IUCAGI IUGIA IUI IAAAA CAAAAAAAAAAAAAAAAAAAAAAAAAA	65479 TTATATGCCTCGCTTAATTCTCCTTGGTATTGATTGGATTATTGAATTTTGAGTACAAAT 65420	밁
224 isIleHisAlaTyrbheAlaVal	126 126	S S
TTCTGGAATGGTTGAAACTAGAAATCGCTCCCAAGCATTACATCCGATGGCTTGACGAAC	Cy 109 AFGPFOABDSERGJYLEUSERALBITETITEGLULEUSBPFFOGLYTYLITETIT 140	B &
204 heLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnH 224	65599 TGGCTCAAATGCTGCTCGACCCTTACAACCAGACGGATCATCCAGAGTGCAAGTCA	? B
	89 TrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSer 108	δ
184 euArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrP 204	Db 65659 CATTITCATACITGCGACTTAAICGGGTTCATGGTGCAGCTCTTAICTGCTGTCAATTGC 65600 Oy	Дb

2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8 8 8 8 8 8 8	Q B Q B Q	B	2 8 8 8 8 8 8 8 8 8 8
53 TAATTTGATTGAATGAAGATCCTAGTAAGTTGCACTGGTTTCTAATGGTAATTACCACAG 62 55	62793 AGTGGAAAACCATATCCAGATAACTGATAATAACTGATATTTATGAATTTTATGAAAGGG 62734 442 SerLeuvalSerArg 443 SerLeuvalSerArg 444 SerLeuvalSerArg 446	415 Val	63152 AATTCTCAGTTTCACATACATATTTATCTTCAAAGTAAACCACCAACTTACATGTTTTTA 63093 382	31
Agrobiological Sciences, Rice Genome Research Program; Ka: 2-1-2, Tsukuba, Ibaraki 305-8602, Japan 2-1-2, Tsukuba, Ibaraki 305-8602, Japan (E-maii:tsasaki@nias.affrc.go.jp, URL:http://rgp.dna.affr Tel:81-298-38-7441, Fax:81-298-38-7468) On Jun 1, 2004 this sequence version replaced gi:38564216 Genes were predicted from the integrated results of the f. GENSCAN (http://cR-081.mit.edu/GENSCAN.html), FGENESH (http://www.softberry.com/), Genemark.hmm (http://www.softberry.com/), GeneMark/, GlimmerM (http://www.tigr.org/tdb/glimmerm/glmr_form.html), RiceHM (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://bioinformatics.iastate.edu/cgi-bin/sp.cgi), sim4	iva (japonica cultivar-group) civa (japonica cultivar-group) s, Viridiplantae; Streptophyta; Embryophyta; Tr phyta; Magnoliophyta; Liliopsida; Poales; Poace ideae; Oryzeae; Oryza. ., Matsumoto,T. and Katayose,Y. civa nipponbare(GA3) genomic DNA, chromosome 2, JNBa0053L11 d Only in Database (2002) s 1 to 147123)	Oy 536 rAlaValTrpGluieuAspLysSerGly 545	Db 62073 TTGTTGTGGCTAATAGAATTATTGACTGTTTACCTTGTAGCATATCACAATGTTGA 62014 Qy 487GlnProGluHisAspGlySerAspValHi 496 Db 62013 CTTTCCTGCTTTGTACATCCTACTGTTTTTGCAGGCAGAACATGATGGATCTGATTTACA 61954 Qy 496 sValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAl 516	Db 62373 TTTAGAATAAAATAGTAACACAATTTATTCTTTCCAGATCAGGTAATTCTGTTACTGGAA 62314 Qy 462

```
.BABPGlySerABPValHi 496
|||||||||||||
NTGATGGATCTGATTTACA 61954
                   rIleProGlyLysArgTh 536
                                                          eAlaAsnMetThrLysAl 516
: ||||||||:::
CCCAAACATGACGAGGAC 61894
                                                                                                                                                                                  ATCACAATGTTAATGTGC 62014
                                                                                                                                                                                                                                              CCTGTTTATTAATTTGTT 62074
                                                                                                                                                                                                                                                                                                        GGCTCCGCAGGTATTTTA 62134
                                                                                                                                                                                                                                                                                                                                tAlaPro---- 486
                                                                                                                                                                                                                                                                                                                                                                       1ProTyrHisSerLeuSe 470
                                                                                                                                                                                                                                                                                                                                                                                                                                      TAGTATCTTTATAGGTCA 62254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTAATTCTGTTACTGGAA 62314
CÁTTCCGGGÁTGGÁGÁAC 61834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . . . . . . . . . . . . . . 462
                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                              ----- 486
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                        SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (http://globin.cse.psu.edu/html/docs/sim4.html), gap2
(http://www.tigr.org/software/glimmerm/), BLASTN and BLASTX. The genomic sequence was searched against NCBI NonRedundant Protein database, nr (ftp://ncbi.nlm.nih.gov/blast/db) and the cDNA sequence database at RGP or DDBJ. Protein homologies of the coding regions were searched against NCBI NonRedundant Protein database with BLASTP. ESTs represent the identified cDNA sequences using BLASTN with the corresponding DBBJ accession no. and RGP clone ID. Full-length cDNAs represent the identified cDNA sequences using BLASTN with the corresponding DBBJ accession no. A gene with identity or significant homology to a protein is classified based on the protein name to indicate the homology level such as same name, 'putative-' and '-like protein'. A gene without significant homology to any protein but with full-length cDNA or EST homology (covering almost the entire length of partial sequence) is classified as an 'unknown' protein. A gene without sequence) is classified as an 'unknown' protein. A gene predicted by a single gene prediction programs is classified as a probable 'hypothetical' protein and is included as a miscellaneous feature of the sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   assembly quality together with annotation of this entry is available at http://rgp.dna.affrc.go.jp/GenomeSeq.html.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The orientation of the sequence is from -21M13 to M13rev of the clone. This sequence of OSJNBa0053L11 clone has an overlap with P0016F11 (DDBJ: AP005303) clone at 5' end and with OJ1293 E04 (DDBJ: AP004120) at 3' end. Detailed information on overlap and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                join(<2264. .2293,2852. .>3226)
/gene="OSJNBa0053L11.2"
/notee"start and end point are not identified"
join(2264. .2293,2852. .3226)
/gene="OSJNBa0053L11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="OSJNBa0053L11.2"
join(<2264. .2293,2852.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            predicted by GENSCAN this category is not
                                                                                                                                                           /gene="OSJNBa0053L11.3"
/gene="supported by full-length cDNA(s): AK119257"
/gene="SJNBa0053L11.3"
/gene="SJNBa0053L11.3"
/gene="OSJNBa0053L11.3"
/gene="OSJNBa0053L11.3"
/gene="SJNBa0053L11.3"
/gene="SJNBa0053L11.3"
/gene="SJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
/gene="CSJNBa0053L11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPPRRDTANPSTRHGGQTAAATRWPPLGSTCG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="BAD22377.1"
/db_xref="GI:47948525"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Oryza sativa (japonica cultivar-group)"
mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /trānslation="machgdayvsrrrgtnsaratespprrqasasargsiasaatrd
sanaeglrplwlsasalshgsvtsaitrnsyavnvatsrgspslppratppaargyva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(210. .282,431. .528,603./
/gene="OSJNBa0053L11.1"
/note="hypothetical ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .147123
/product="putative cinnamoyl CoA reductase"
/protein_id="BAD22378.1"
/db_xref="GI:47848526"
                                                                                                                                  contains full-length cDNA(8): AK119257,AK063935"
                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="OSJNBa0053L11.3"
join(4436. .4894,4982.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="predicted by GENSCAN etc."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cultivar="Nipponbare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 xref="taxon:39947"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        category is not included in IRGSP standard"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . 662)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .662)
```

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mssnnsmeanngddekkqeqvvcvtgaggfigswvvkelllrgy 
Rvrgtardprknahlldlegakerlticraavyldfasiraafachgchgvehiasfvskd 
Pnlvpvaiegtrnwkkaadmgvrrvvftssygavhmypnrspdavldeschhvvryltig 
Qrediycyakwaektatebasrricdlavvvpcvtvgfilqbsvnfschhvvryltig 
Aaatypnavaayadvrdvaahvlvyehhgargrylcigtvihraellrmlkelfpqy 
Aaatypnavaayadvrdvaahvlvysehhgargrylcigtvihraellrmlkelfpqy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="start and end point are not identified" complement(join(7826. .8214,8309. .8435)) /gene="OSNBa0053L11.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="05JNBa0053L11.5"
join(<9814. 10128,10328. .10525,10605. .10954,11058. .>11214)
/gene="05JNBa0053L11.5"
/gene="Start and end point are not identified"
join(9814. .10128,10328. .10525,10605. .10954,11058. .11214)
/gene="05JNBa0053L11.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /trānslation="maaagpsssapprpgagvatmvagrrgdsaaggrgalhgrrgaa
avvadvvetklattaadcgscrdagprhcsgcerrardaflhdasdprvalhlrsasp
rpdldvwrlvalasdgggwtgvavavawamvadgggcgsdgggyrrcylwrrwlka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (join (<7826. .8214,8309./gene="OSJNBa0053L11.4"
AHLRCERLVFPLTRLTYYAAISGHLRFHRRPDSSPPTGVFIVIDGRLCSHIGHFCHHQ
GEYYKAKNGSVRTSPPARLDRRRLVFPPARLAFMPPLLGVYVFTDRLAFAADMCFRL
HGWPLCRCWASTSSPTGRLVRRRLVLPPARLAYYAAVVGRLIRLHRPAASSADMCFR
LHGWPIMPPLLGVYVFTDRLAFAADMCFRLHGWPIMPPLLGVYVFTDR PPRPPPTGR
SACTRGLLCRRCWASTSSPTGLPSPPPTGVSRACTAGLYATVVGRLRLHRLACLRRCRL
VFPPARLAFMPPLLGVYVFTDRLAFAADMCFRLHGWPLCRRCMASTSSPTGLPSPPP
TGVSACTAGLLCRRCWASTSSPTGRLVRRRLVLPPARLAYYAAVVGRLRLHRLACLRR
TGVSACTAGLLCRRCWASTSSPTGRLVRRRLVLPPARLAYYAAVVGRLRLHRLACLRR
                                                                                                                                                                                                                                                                                                                                                                            /product="HGWP repeat containing protein-like"
/protein id="BAD22381.1"
/db_xref="G1:47848529"
/translation="MGVHVFADRLAFAAADWCFCLHGWPIMPPLLGVYDFTTGLPPSP
/translation="MGVHYFADRLAFAAADWCFCLHGWPIMPPLLGVYDFTTGLPPSP
PTGVLAYTVGMSHHRSWASTSSPTGWPSPPPTGVSAYTVGLLCHRCWASTTSPPACLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="hypothetical protein"
/protein_id="BAD22379.1"
/db_xref="GI:47848527"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (7826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PVTSKCEDEGNQMVKPYKFSNQRLRDLGLEFTPLRKSLHEAIECLQRKGHLPVVTVAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this category is not included in IRGSP standard" 15304. .18533 /gene="OSJNBa0053L11.7" join(<15304. .16325,17024. .>18533)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="OSJNBa0053L11.6"
complement(join(12759.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FCROKDVSLLHMYCYAKTMAEMAATEEAAKRGLELAVVVPSMTMGPMLQRALNLSSTH
VANYLTGAKKSYPNAVAAYVDVRDVARAHALVYERHDARGRYLCIGAVLHRAQLLQML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /t.Tanslation="MSSISNDNNGDQKRQQQQQLVCVTGAGGFIGSWVVRELLLRGYR
VRATVRDPADRKNAHLLALEGAHERLSLRRADVLDFAGLLAAFAGCHGVFHVACFLSN
RDPELMAVAVDGTRNVMNAAADMGVRRVVFTSSYGAVHMNPNRSPDAVLDESCHSDPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="putative cinnamoyl CoA reductase"
/protein_id="BAD22380.1"
/db_xref="GI:47848528"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="OSJNBa0053L11.4"
                                                                                                                                                                                                                                                              RRILVPPPTRVAYYAAAVGRLRLHRRPAFAAADWCFRLHGWPIMPPLLGVYDFTAGLS
PSPPSGASAYTAGLLCRRCWASTTSPPAYLRRRRVVPPPTRLAYYAAAVGRLRLHRRP
ASVAAEWCLRLHGWPIMPPLLGVYDFTAGLLPSPPSGASAYTAGLLCRRCWKTSSLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="start and end point are not identified"
join(15304. .16325,17024. .18533)
/gene="OSJNBa0053L11.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  predicted by GENSCAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="OSJNBa0053L11.6"
/note="hypothetical ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (join (12759.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MDLFPQYTIASKCDDKGKPMVKPYEFSNQRLKDLGLEFTPLRKSLYDAVMCMQRNGHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [IRLTVRHRRR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="similar to Oryza sativa chromosome 1, P0497A05.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="OSJNBa0053L11.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .8435)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .12851,13439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .12851,13439. .13519))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . >8435))
```

mRNA gene gene

Sab

mRNA gene CDS

mRNA gene

Db 127937 GTCATTACTTCACTGGAAAAGGGATATTTGTTAATTGTGTGATGGTTGGGACTGTTTCCT 127878	Qy 81 81	Db 127997 CGGTTGTGTGTACTACGTAACCATGCTAAAACTAGTGACACGTTCAGTTAGAAGAGGTTT 127938	128057 ATCTGCTTGATTTGAGTGACCATCTAGTTATAGGTTTTTGGAAGTGTTTTTAGGACTAAAT 1	Qy 81 81	1281	81	Qy 81 81 Db 128177 TGGATAATATATGTGCTTTTTGTTCTTTTATTAGGATTCGTTGGTCTTGTGAGGGCA 128118	128237 CGTTCCGTACTGTCCTCCTGATATTCAGAAAGCTACTTTTGCTAGTAACTGTTGTTGTTC	81	Qy 67 LeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLys		128411 GGAGGCGAIGGCGGCGCGGAITTC	27 AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle	pb 128471 TCGGTGGCGGTGGCGGTGGCGGTGGCGGTGGCGGTGGCGGTGGGCGTGGGC 128412	Qy 7 SerValThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr 26	91 (1-1	Match: 50.03% Indels: 15 Gaps:		No.: 1.05e-115 Length:		.22112,22149	. *	/cocon_scart=1 /product="hypothetical protein" /protein_id="BAD22382.1"	/gene="OSJNBa0053L11.8" /note="predicted by FGE	/note="start and end point are not identified" CDS complement(join(1899419134,1978619818))	mRNA complement (join (*18994. 19134,19786>19818)) /genre="OSMNBA0053111.8"	Gene FAAADWCFRLHGWPIMLPLLGVYVFTGRPPHPPLTDVTASTAGLL" gene Complement(1899419818)
Db 126857 CATGCAAGCTGAAATTGATAATTTTTTTTGGGGGGGAAATTGATAAGCTTTTACTTGCTT 120/30 Qy 175	175	126917 TCACGCATAACTAAGTAGTACTAGTATCAGAAATACAAAGGTTTGGTTGCCTTTGGTGTG	175	Db 126977 CTTCTAAATTGTATCAACCAGAATATACTCACTTTGTTTACCTTCCATACCCTCAAAAAA 126918	127	175	GTACTTCCATAAATTAAAGTTTGTAACACTTCACTTCATATCACATAGCAATCAAT	Qy 169 uTyrPheHisLysLeuLys 175	Qy 149 alleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLe 169 :::	127217	Db 127277 AGCCATAAAAAAATCTTTCTTACTAATTTGGTTTTTATTGGCCAAGTTTTCAĠĠĠĊĊĊĊĊ 127218 Qy 129 uSerThrValTrpLysGluTrpLeuLysTrpCysValGlupheGlyIleGluAlaAsnAl 149	Qy 127GlyProLe 129	127	126	Db 127397 GAGTTAATGATATTGGATATTGCCATGAGATAATAGCATTAGGTTACATTGCAAATTC 127338	127457 TGGAAAAAAAACCATCGATGGCAAGTGAGAGTGATAAAATTTGACATCAAGCTTTTGT 1	126 126	Db 127517 ATGCTGCACGATTCATCAGCAATGTGATAGATTGTGATTTATGCTTCAACTCCCATGCAA 127458	Qy 126 126	Db 127577 TTATATGCCTCGCTTAATTCTCCTTGGTATTGATTGGATTATTGAATTTTGAGTACAAAT 127518	Qy 109 ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 126	QY 89 TrpPheLysCysMetValLeuAspProTyrAsnGLITTRASpH1sProGLICYSLYSSET 108 :::	127757 CATTTTCATACTTGCGACTTAATCGGGTTCATGGTGCAGCTCTTATTGCTGCTGTCGTAATTGC 12	Qy 82	1278	81	QY 81 81

124651 TAATTTGATTGAATGAAGATCCTAGTAAGTTGCACTGGTTTCTAATGGTAATTACCACAG 124592	283 spAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysA 300	Ş
	263 euSerAenSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAenCysLysGlyA 283 :: :::	유 성
124771 TCAAATTATCCATTATCTGTCTTTATGTATGTCTGCTTCTAGTGTAGTTTCCTGGAACAG 124712 446	125837 TATATTGTCTCTTATGCATCTAAAATTGCTTTTATTGTTTTCAGGGAACAGCACGATTGA	B &
	125897 GTTGAATCTGAGCTATATATTTGCCAAAATTGTTACATTATATGCCATCTTATAAT 125838	S B
442 SerLeuValSerArg	257 257 Db	ð
	257 257 125957 CAGTTAGGGAGGTTGTTTTGGTGCATGTATAAATTCTCTACCTTCGAGTGATACACATGT 125898	λ δ
124951 ATTACCATTCACCGATTTATGGCCTTTTTTGTTAAGCAGGTAGGCTATTATTITGCACCG 124892 422 SerGlyLysproTyrProAspAsnTrplleIleThrAspIleIleTyrGluThrGluGly 441	ACTTCTCATAGCCGATTCGCACGGCCAGGTTGTGTGCCACAACCATGCTAGTTTTAGAGT	ďď
416	257	5 E
125010 GT-ATGATTGGGATTTTTCTTTGATTGTTAAAGTTTCTACTTTAGCCTGCTTTGAACCAC 124952	257 257	. Q
125070 TGGGAGAGAGACCCCCAATAAAGAATGTGTTCTGCATATATAT	126137 TTGCCCCTTGTTCTTTGTCCCTGCCCTTTCTGAGAGTACTGTTCTGGTAACCTCTCAGCC 126078 Ov	Db
395 TrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu 414	257	Q E
	257	, F &
	126257 TGATATTTATACATTTTTCCTCCAACATTGTTAGTGTTGAATTTTAAGTATGTTGTTTGGTT 126198 Oy	B
382	257	δ.
125250 AATTCTCAGTTTCACATACATATTTATCTTCAAAGTAAACCACCAACTTACATGTTTTTA 125191	257 257 Db 126317 GCCTTTATGAATTATATATATTTTCAATAATGTGTCCTCTGCCCTCAGGAGGCTATATTTC 126258	물 &
	CTGAAGCAGTTAAAGCTGCTCTTTCTGGAGCAACATTTGGTCTTCCAGTCAGCGAGGTCA 126318	рь
	239 alGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGlu 257	9
	232	gg Qg
377	>-	Дb
339 ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAla 357	231	& B
$ \ \ \ :::$	204 heLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnH	. Q
125549 ATCTATGATTAAGATTTTGCTTCCACTGAGCAGGTCTACCTTTTCTTTTCTTTC	184 euArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrP 204 :::	P Q
	126618	рb
320 lelleAsnILeGluILeProSer'INT-SerVal	176	Ş
	TACAATACTTGATAATGACACGGCGATATGTCGGAAATTCATTGTTGCATGCGGAAAGAT 126678	당 4
300 rgValTyrHisCygAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnI 320	126797 CTTTCATTTTTTATGACATCCTTTTCACTTGAATTAAAAGTTGTTTTCTTCAAGTTTA 126738 Qy	∂ ₽
125717 ATAATATATACTGGAAGCATTTCTTTGAGGGAAAGGGAGGTTGCCACCACAGACAG		

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
AP004882/c
LOCUS
                                                                                           JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124591 ATAATAGCTTTTCGTGCATTTGTTTTCTCGAAAAATACTGACCTTTGAACCTTTGGCTTT 124532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   496
Published Only in Database (2002)
2 (bases 1 to 15971)
Sasaki, T., Matsumoto, T. and Yamamoto, K.

Direct Submission
Submitted (20-MAR-2002) Takuji Sasaki, National Institute of Agrobiological Sciences, Rice Genome Research Program; Kannor 2-1-2, Tsukuba, Ibaraki 305-8602, Japan
                                                                                                                                                                                               Oryza sativa nipponbare(GA3) genomic DNA, clone:00511E12
                                                                                                                                                                                                                                                                                                               AP004882.1 GI:19698302
HTG; HTGS PHASE2.
Oryza satīva (japonica cultivar-group)
Oryza satīva (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Trache Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryza sativa (japonica cultivar-group)
*** SEQUENCING IN PROGRESS ***.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AP004882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AP004882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCCCAACAATTCCAGCGGAGACGGAACGGTATGTTCTACTGTAGTATCTTTATAGGTCA 124352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGATGAGTTCAATTCTGGTTTGGACAACTGTTTATCTGGCCACATTTTTATGTCTTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTTCCTGCTTTGTACATCCTACTGTTTTTGCAGGCAGAACATGATGGATCTGATTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTAGAATAAAATAGTAACACAATTTATTCTTTCCAGATCAGGTAATTCTGTTACTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yAspGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCACATGTGAAGTACATAACCTACTTTGAAGATGCTGAGAGCATTCCGGGATGGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aProArgValLysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAAAGATGÁATGTCGÁCCATCTAGGCCAGGGCATACTCCCAÁACATGACGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGTTGTGGCTAATAGAATTATTGACTGTTTCCTTGTAGCATATCACAATGTTAATGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATGTGCCTAGTGATATGATCCTCAGCAGAGGAGTTTGAGGCCTGTTTATTAATTTGTT 124172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGGTGCAAGAACTGGCTTGGGCCAAAAGTGAACATAACTAGGGCTCCGCAGGTATTTTA 124232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCGTCTGGGAGCTTGATAAAGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rAlaValTrpGluLeuAspLysSerGly 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ThrValProTyrHisSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158971 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GlnProGluHisAspGlySerAspValHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AlaGlyprolleThrGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             chromosome 2 clone P0511E12
                                                                                                                                                                                                                                            chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HTG 23-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                        Tracheophyta;
                                    Kannondai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 124292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                            밁
                                                                                                             S
                                                                                                                                                                                   밁
                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-651-651-5 (1-546) x AP004882 (1-158971)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60058
                                                                                                                                                                                                                                                                                                                                                                                                                   59704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27
               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (E-mail:tsasaki@nias.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, Tel:81.298-38-7441, Fax:81-298-38-7468)
NOTE: It currently consists of I contigs. Gaps between the contigs are represented as runs of N. The order of the pieces is believed to be correct as given, however the sizes of the gaps between them are based on estimates that have provided by the submitter. This sequence will be replaced by the finished sequence as soon as it is available and the accession number will be preserved.

* NOTE: This is a 'working draft' sequence.

* This sequence will be replaced

* by the finished sequence as soon as it is available and

* the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGGCGATGGCGCGCGGATTTC----GACTACCGGAAGCTCTCGGGGATAATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rceereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccereccerec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGGGTTCGCCACCAGCTGCGCGCGTGGTCTGTGCTGGATTGCCCCTACTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ServalThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr
                                                               GTCATTACTTCACTGGAAAAGGGATATTTGTTAATTGTGTGATGGTTGGGACTGTTTCCT
                                                                                                                                                                                                                                                                                                {\tt ATCTGCTTGATTTGAGTGACCATCTAGTTATAGGTTTTTGGAAGTGTTTTTAGGACTAAAT}
                                                                                                                                                                                                                                                                                                                                                                                                                      TTGATGGATTAAAGTAATTTTGCAATGGCCCATCAGGCAGATGCGTGTGTGCGACTGCAC 59645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGATAATATATGTGCTTTTGTTCTTTTATTAGGATTCGTTGGTCTGTTCTTGTGAGGCA 59705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCGACTTCAACCCCCTCGACTCCGTCTGGCTCGACACCGCCAAGGTCAGAACCACCCCCT 59825
                                                                                                                                                                                   CGGTTGTGTGTACTACGTAACCATGCTAAAACTAGTGACACGTTCAGTTAGAAGAGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Oryza sativa (
/mol type="genomic DNA"
/cultivar="Nipponbare"
/db_xref="taxon:39947"
/chromosome="2"
/clone="P0511E12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocation/Qualifiers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . .158971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.15e-115
1483.50
29.50%
26.17%
50.03%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (japonica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158971
401
51
81
1001
```

59945 46 26

66

81 59885

18

81

59525 81

81 59465 81

81

á 밁

Ś 밁

밁

밁 á 밁 á 8 Ś

Ś

Ş 밁 5 밁 Ś 밁 S 망 Ś 밁 ş

밁

8 8 8 8

CTTCTAAATTGTATCAACCAGAATATACTCACTTTGTTTACCTTCCATACCCTCAAAAAA TCACGCATAACTAAGTAGTACTAGTATCAGAAATACAAAGGTTTGGTTGCCTTTGGTGTG CATGCAAGCTGAAATTGATAATTTTTTTTTGCGGGGGAAATTGATAAGCTTTTACTTGCTT	169 uTyrPheHislysLeuLys 175	AGCCATAAAAAATCTTTCTTACTAATTTGGTTTATTGGCCAAGTTTTCAGGTCCTCT USerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAl :::	GAGTTAATAATGGATATTGCCATGAGAATAATAGCATTAGCTAGGTTACATTGCAAATTC TOTTCATCGGTAAGCTGTAGAATTCCCCCATCTCCTCAAAGAATAAAAAAATGATT ATGTTCATCGGTAAGCTGTAGAATTCCCCCATCTCCTCCAAAGAATAAAAAAATGATT	126	59464 GTAAGGCGTCATACGGCTTAATTGGGTGAGGTTGTTACAGAAGCATTCAATCTGTGCAAT 59405 81
Db 57484 GTTGAATCTGTACTTAGCTATATA Oy 258 Oy 258 Oy 258 Db 57424 TATATTGTCTCTTATGCATCTAAA Oy 263 euSerAsnSerPheAlaSerSerL	57604 AV 257 - 57544 C. 257 -	Qy 257 Db 57724 TTGCCCCTTGTTCTTT Qy 257 Db 57664 CTTCTACACGTGCAAG Qy 257	Qy 257 Db 57904 GCCTTTATGAATTATA Qy 257	Qy 224 islleHisallaTyrPh Db 58084 ATATACATGCATACTT Qy 232	58384 CT 175 176 176 176 58264 AG 184 eu 184 eu 58204 TT 58204 TT
TTERATCTGTACTTAGCTAFATATTGCCAAAATTGTTACAFTATAGCCATCTTATAAT 5/4/5		rgccccttgttctttgtccctgccctttctgagagtactgttctggtaacctctcagcc 57665	257 CCTTTAIGAATTATATATTTTCAATAATGTGTCCCTCAGGAGGCTATATTTC 57845	IleHisAlaTyrPheAlaVal	

밁

음 성

음 성

유 성

중 유

중 음

중 음 중

8 8 8 8

8 B 8

음 성

음 성

B & B & B & B

음 성

446	56597 GT-ATGATTGGGATTTTTCTTTGATTGTTAAAGTTTCTACTTTAGCCTGCTTTGAACCAC 56539 416	37 AATTCTCAGTTTCACATACATATTTATCTTCAAAGTAAACCACCAACTTACATGTTTTTA 56 82	57076 TGTTTTCCTCTGGCAGATACCGAAGCCATCCATTATGGATACAACTGAGAACATA 57017 339 ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAla 357	300 rgValTyrHisCysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnI 320
NCT (D	RESULT 15 APO06356/C APO06356 LOCUS LOCUS LOCUS LOCUS LOCUS APO06356 APO06361 APO06361 APO063656 APO06366 APO063666 APO063666 APO063666 APO063666 APO063666 APO063666 APO063666 APO0636	Qy 487	463ThrVallroTyrHisSerLeuSe 463ThrVallroTyrHisSerLeuSe	Qy 455

Ş Q

밁 δ В Ś 밁 Ş 밁 Ş 망 5 밁 Ś 밁 Ś

밁

Ś

밁

g á 밁

á

밁

Ś 밁

5

Ş 밁 문 Ś 밁 Ş В

Ś

Oy 83	3380	Qy 82	82 82	Db 33923 ACTGTTTCCTGAACAGGTGACAGAGTCTGTCAAAGAATAAAAAGAAAG	Qy 82 82	Db 33983 CATAAGGAGGAGAGTACAAGTTCAAATCTCGATGAAGACACTTGTTGGGAGGGA	Qy 82 82	34043 AAGGTTTTTTATAGCTTATTTTAGTAACTTTTTTCTGAAGTTAGTT	Db 34103 TGATTGTTCATAGTATAACTATAAGTACATGCTTGATTAAATTTTATGAAGAGCTTAGGAT 34044	8 2 2	34163 ACGTTTCCATGCCAATCCTTTCTGTTTCATTCTCTTTTCTAGGTGATGATTTTTTTT	2	Db 34222 CCTTACTCTCCTCTCGATTTCAACCCTCTCGATTTGGTCTGGATGGA	63 ProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeu	Db 34282 GCATTATCATCCCCGGCTTCGCCTCCACTCAGCTCCGAGCATGGTCGATTCTTGACTGC 34223	. Qy 43 GlyIleIleIroGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCys 62	34327 GCCGGACGCGGAGCATCGTCGGACCTCGACTA	23	Qy 3 AlaAshSerLysServalThrAlaserPheThrVallleAlavalPhePheFedulleCys 22	-09-651-651-5 (1-546) x AP006356 (1-93398)	30.86% Indels: 15 Gaps:	Pred. No.: 6.89e-67 Length: 93398 Score: 915.00 Matches: 406 Percent Similarity: 17.05% Conservative: 52 Percent Similarity: 15.12% Mismatches: 73	synonym: Lotus japonicus"	/clone="LjT06I08" /clone lib="LjT library" /note="TM0082b, a part of TAC clone:TM0082.	/vailety="Japonicus" /db_xref="neaxon:34305" /chromosome="6"	source 193398 /organism="Lotus corniculatus var. japonicus" /mol type="genomic DNA" /mol type="genomic DNA"	OKU: INTEQ: //www. Kazusa. Or. Jp/, 181: 01-430-32-3333 (ex. 6337/) Fax: 81-438-52-3944) FEATURES Location/Qualifiers	,
ω 22	Db 32724 AATAITTGGTTAACAATAAATIGGATAAGTTCTAATAGTTAATIGTAATIGTCGATICACTATT 32665	175	Db 32784 ATAACATAGTGACAAATTTACAAGCACGAAATTTGAGCGCTGTAATATGATATATTGATA 32725	175	32	175	32904 CATTTAGAGTCTACTATAATCGTAAACTAATAGAGTAATAGTATTCTTGATGACTTCTGT	Db 32964 TACCCCTCATCTAACATTTACTCAAACAAAACTATCACAGGACTGGCATAATAAATTGGT 32905	Qy 175 175	Db 33024 CTTCCTCTTCATAAATTTTTGATCTCCTAAACAAGGCATGTTTCCATCCCACCCCTTCAT 32965	Qy 175 175	Db 33084 TCTAGCCCATGAGGAACAAAAAATGAGTGTTCGAGGGGAACAGTTCTCCCCCACTTTTT 33025	Qy 175 175	u u		33204 TAACTAGAACTTTTATCGCAATAGTATAACAATGTTTTCATTTTACTGATATGTTATCTTTC	Db 33284 TCCTTGAAFTTTGTTACAGTTTGCACGTGGAATTTCAGTTGCATTGCA	175	33324 TTGCATCTGAGTCACTGTAGGTCAGGCAGCTATTCTCTGCTATGATTTGGATAGTA	Oy 175	Qy 160 rProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLys	SpTrpArgLeuSe ATTGGAGACTGTC	Oy 125	33563 AATATGCTTTGCTTTTGTTATCTATTTGTCGTAGTTTTTTGCATTTCATGGATTGAGGAT	124	Qy 119 GluLeuAspProGlyTyr124	AACCAGACGGATCACCCTGATTGCAAGTCTCGCCCTGATAGTGGTCTTCTGGTATTACA	0

	257 257
2	31585 TTGATCCAATATTACCTTGTCTAATGCTGTTAATGGCGGATGGCAGACCATGGCTAGAGC 31526
30505 CTCTTACAATTATTCATGCATAGTAGAAAGTACTTATCTGAAGAGCTAGCT	257 257 pb
257	31645 GACTATAAACTTGGAAAAGATAACAGGATAAACACACTTGAAATCTGCATCAAGGAAATG 31586 Qy
30565 CCATACTTCTCGTTATATATTACATGCTTCTAAGTCGTTTTTCTTATTGACGACATGAAAC 30506	257 257 Db
257 257	31705 GTTTTATTGGTTTGCATTTCAGTTGTCCAACATGCAGTTATAATAGGTGATTCCAAGTAG 31646 Qy
30625 TTTTTGTATTGTTCTTCAATTACAATGCTGAACTGTTGAAATACATCTTTTGCTGGAATT 30566	257 257
257 257	S CIIICIBAABBICIBIAIICCICAABAABICIIIAAABACIIACIBABIAACIBCIIICI
30685 ATTTCCATTAAAACCTATTCTTTTATAGTTTTTTTTAAGAAAATAATAAAATCCCTTGAGA 30626	
257 257	2 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1
30745 CAAATGAAAGAGAGAGAAAAAAAGGACTTCGAACTTTCGAAACCTTACTGACATATATT 30686	27. STEACHER REPORTED A CHAPTER OF A CHAPTER
257 257	O APPETAINMENT TO THE TEMPET TO THE TEMPETAL THE TEMPETAL THE
30805 AAATTGGAGCATTTTACTATAGAATAATTTCATGTAAGGGTAAAATTTCTGAAAGCTGCT 30746	20 C C C C C C C C C C C C C C C C C C C
257 257	77
30865 GAGAACCGAGAAGGAAATTTTCATCTTGATGAAGATGCTCAATATCATCTAGGGCATGGG 30806	בס / בארכיריים ממליים מידים מידים ממליים ממל
257 257	S CIRRELHCTCTCTTCTTCTTCWACWAWACCTRANAWITCTTCTHTTTGTTCCWAWCTTTH 3
30925 AATATTTTCAATTTTAATTTAAACAGAGGTTAAATTCAAAGAAACAACTTGCAGTAAGGG 30866	
257 257	257
30985 TTGAAGTGGGCTTAATGTCCTAGATTTTAGGATTAGAGTTTGAATACAATTTGGAGAAAG 30926	
257 257	25. 25. 27. 27. 27. 27. 27. 27. 27. 27. 27. 27
31045 CCTACTCATGCATTAGAAGTGGGCTTAATGTCCCCATATTTGGAAAATCACTTGCTCATGC 30986	こと こうごごかな てしたしたしたした でんくし でんしん そうごうしん そうてんしん しんじん かんしん さんしん こうしん こうしんしん しんしん しんしん しんしん しんしん しんしん
257 257	257 257
31105 TGTTTCTAAATATTCACCTATATCATGGCATCATGATATGGGGGCAGATTTGGAACATTG 31046	21.2 4.0 4 4.7 5.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1
257 257	757
31165 CTCTATAGTCATATTGCAGCACATAGAGCTGTTAATCTCTGAATGTTATCCCTGTTGCCA 31106	245 rLeuSerc1,YVa1Thr2he61,YLeuProVa1Serc1,U
257 257	CITITIGATUGGITGTCTCAGGAGCTCCCCTTTTGGGTGCAACTGAAACCGTCGAAGCAAC
31225 TTTTGGTCTAACAGCATCATACAACTTCCTTGTCATTATTCATTAGTGGTCTTTAATCAT 31166	232GIVALAProLeuLeuGIYSerValGluAlaIIeLysSerin 245
257 257	TGCATTTATTACATTTTATCAGTATTGCTGATTAAGTGATATATTGGTATGCTGATTTTC
31285 TATTTAATCATTAACTTTGACACCCAGGCATTGCTTGAGCTGCTTGAATAATTCAGCTGT 31226	231
257 257	TITCGAATGGCTGGATCAACATATTCACGCATATTTGCTGT-TGGTATGTTTACATATG
31345 CATCTCTCTGTGCTGTTGTCTTAACAGGAATAGCACCCACTTCATAACTTTTTAATATCT 31286	217 rieulysTrpleuAspGinHisIieHisAlaTyrPheAlaVal
257 257	TAATCACGTTTTTCGTTATTTCTTGGAGTGGTTGAAGCTAGAGATAGCACCAAAACATTA
31405 CACAGCTTAACAGTCATATAACCCCACTTACAATGATTGTGACTTTAATAGGATGCATGAA 31346	ABONASNVAlPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTy 217
257 257	ATTIVAAACTGCTTATAAACTTCGAGGTGGCCCTCTTTAGTTTTTTGCCCATTCATT
31465 ATGGCGGAGAGCCAAAAACCCATCATGAGATTCGACGGCGCCATGGCAAATATTTGATAA 31406	rPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGl 197
257 257	32604 TTAATTGCCTTGAGGATTTTTACATTTTCTCCAAATTGTATTTCTTGTTTGCAGATTGAC 32545 Oy
31525 CAAACCCTGCTATATTGGATTGGACAAATAATGGTGGCGGATTATGGCTTGATATCGGCC 31466	

원 용 성

음 성

8 8 8 8

음 성 음

Ş

음 성 음

ક

8 8 8 8 8 8

B & B & B

B & B & B & B & 8

383TyrHisAspAspProValPheAsnProLeuThrProTrpGluArgPr 398	29430 GCAACTTTATTTTGTTATGTGTAGTTCTACTATTGAACAAACA	382 382	29490 TATTATAAAACCTCTATTTTATTTACTTCTTTCCCTGATATATACTATTTTACTTCGTG 29431		CTATCTATCCTGAAATATTGGTTTTGAAAAATAGGTTTTCGAAGAGCAAGTTTCTGTTTC		CTGTAAATAGGGCGCTTTCATTTACAAGGAATATATAATTATAAAGAAACATATGTTTCT 2		TATATTTTGCTACAATGTTTTCATCATTTTACATGAGATGCCGAAAATTGAGCTTCTGAA		CAGAGGCTTTTGTACCAGTTAGAGAAGTG-AGTGTTATCTCAACAATAATCAAAAAT	::: ::: :::	AGCTCGTGAAATAGCTGGCTGCTTTTTCAAGGCAATTGAAGATTATGACCCAGATAG	rAlaArgGluLeuAlaAspGlyThrLeuPheLyBAlaIleGluAspTyrAspPrOAspSe	GHIACCIGAIGCCAACIIGICCAGCAIGGAAAIGIGGAACIACCIAC	ThrAlaLeuvalAsnMetThrSerMetGJuVySdJyLeuvalAsnMetAsarana	TCCCCAACTGCCTATTTGTGTCTTGCATGCAGGATTTGATGCATATCCTTCATTTTCAGA	ServalThrG1			AACAAAGATAATCAACATTGAAATCCCCTCAAG-TCGTGGTGAGATTGACGATTCTCTTG	OThrAsnIleIleAsnIleGluIleProSerThr		SASPLYSATGVAlTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpPr	30145 CAAGTACTGCAGAACAGATAATAATATTGGAAACATTTTGCCGGAGAAAGGCATGC 30089	277 rLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLy 297	30205 GGGAACAGCTCGATTGATGTTCAACTCATTTGGTTCATCATTGTGGATGCCTTTTTC 30146	258 -GlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSe 277	30265 TCATCTGACAGTTCTATTCCTGTCTTAATAAATGCTTATCATAATTTTTTTT	257 257	30325 ATCAAACTGCCATTGGTTAATAGATTAATTGATTTGGACATGCGTTTCATGTATACTATT 30266	257 257	30385 AGTTGCACCAGTTATTGTATCGCCCCTCCAAACCTAAATCATAATCAACTTCCAGATAAAC 30326	257 257	30445 TAGAAAATAGTAGGTTGAATTCCAAGTTGTGCTGCATACTGATTATTAGGAAATTATTGA 30386
Db ;	Q	Db	Ş	Db	γQ	Db	Q	Db	Q	Db	Q	Db	Ş	Db	δ	Db	B	DЬ	δ	Db	Ş	Db	\$	Дb	Q .	B 4	Q	문 !		₽ \$? 8	g 5)
	414GluValGlyTyrTyrPheA 420	28350 CTTAATTTATACTCAGTAAAGTCTTTTGGGGAATTTGTTAATCAGAAATAGTGTTATTGA 28291	413 413	28410 AATCTTTTTGTGTTAACAATTTTTTCCTGACTTGTCATCATTTTCCTGTACCATGAGATT 28351	413 413	28470 CAGCTAGCATAGCTAGAACATTTGAATGTTTTTAGCTTCATGAATAATGTCAATTATCAA 28411	413 413	28530 ACATTITCAAGTGGTATAGGGGTAACATTGCTTTACTGGACCTTGATAGCTTGCAGCTTG 28471	413 413	28590 ACATGTGATATATTCCGGTCCTTTCTTATTTGTGCAGTTGTGCTCATTGTTGAGTACTGA 28531	413 413	28650 TTCAATTCTTGTTTCTCTCTATCCTTTTAGCAAGAATTTCACATTTTAGAGAGACTTTTT 28591	413 413	28710 AAAAGGATTACTCGTCTCCTTGTTAGTTCAATTTTAAGTTATATAGAAGCTTTCAAAACA 28651	413 413	28770 AAGCCACAGCCCACATGTATGGATATACAACTAAGAAGCATTTCATACGGAGTGAGAATA 28711	413 413	28830 CAATTTTATTTGCAACACTTTAAATAATTCCTTTCCCTCGGAGGTTAGTTGTGTTTAAGCA 28771	413 413	::: 28890 GTTGAAGTCGCATCAGAAGTACTTGTAGATTTTGATCATTTTATACTCACCAT 28831	409AlaHisLeuLys-Thr 413	28950 AATTCGTTTTCAAAGCTGAGAAATGTCCCTATCTTTTAGTTCTATGGAATATTTATATTT 28891	408 408	29010 TTGAAAAAGCAAGAGATATTGGGCCTTTATATGAGGCACCTACATATGTGAACAATGATT 28951						TCCATTTAATTGAAATTTGGTTATTTTACTGAGATCATGAACTTGGATTTTGGAAGTATGA		TENGRAGATGCAGATGTTTTTTTTTTTTTTTTTTTTTTTTTTT			

음 성

음 6

음 성

음 성

음 성

음 성

음 성

8 8 8 8 8 8 8

음 성 음 성

)		:
7	АТТСТСТТСТАА	\vdash
87	sAsnTrpLeuGlvProLvsValAsnIleThrMetAlaProGln	
472 27211	AAATTAGATTACAGAAAAGTCAACCCTTTACAGGTACCATACACCTCCCTTTCCTGGTGC	463 27270
27271	AGGAAGGCATGATATATTGATC	27330
462		462
462 27331	lyaspGlu	460 27390
7 0	TICAACTGTCAGGTCAGGGAATCTGATTGAAGGGGACCCAACA	
27451	TGCAAATTAATGTTAGTATTGTTCATTTTTTGGATATCCTATTTTTAACATGTTI	27510
445		445
27511	CCTTTTTTTTGGGATGGGAGTTGAGGGATGGTTACTTGGTTAAAATATTTGACATTCATT	27570
445		445
27571	${\tt GTTTTGGCATAACCAGTTCGTATAAGAGGAAAATCTAGACTAGCTTTTGTTAGTCATCAT}$	27630
445		445
27631	TAATAATGACATCTTTCTTTCAAATTGTTGACCAACAACCTCCTTGGTCATGGTGCTGCC	27690
445		445
27691	AGTATTGGTAT	27750
445		445
27751	ATTGCTCTTGTTGGTTGAACTTGGGTGCATAGTATTTTG	27810
445		445
27811	CTATGTCCTCTTTTTTAGAGGGGGGGGGGGGGGGGGGTTACCTTCCAGGATTAAAGGA	27870
445		445
27871	AAGAATACCTTCTCTTTATGCATTTTCAAATTCTTCTCTATTCT	27930
445		445
27931	${\tt TTTTTATTTTGTACTTCATGGATTATGTTTCATTACATAAAGTTACCACAATACTTGTCG}$	27990
445		445
27991	ATCAGTTGTAAATGGAATGAAAATTCTATTATCATCAGTTTGAAGGATCTCTCTC	28050
445		445
28051	${\tt ATTTCTATGGCGGAGTGAAATCAAAGAGAGAGAAGAATAGAAAGATCTAAGTCTACTGTG}$	28110
445		445
445 28111	luGlySerLeuValSer	28170
	TAGTGGCAAGCCTTACCCTGACAACTGGATCATTACGGATGTV	28230
440	laProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrG	420

	GluLeuAspLys 543 	540 26371	B 6
539 26372	LysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgThrAlaValTrp :::	520 26431	유 성
519 26432	ABNVALASPHISGLUHISGLYSerASPILeIleAlaABNMetThrLyBAlaProArgVal :::	500 26491	B 5
26492	TATCTTTGTTTTTGACTTTTCAGTCCGAG-CACGATGCCTCAGATGTACAGATTGAATTG	26550	D.
499	l en	488	Ş
26551	GTTTTCTTCAGTTAGTTTTATTTGCATGAAAATTGATAATTGTATGGCAATTTTCATATT	26610	문
487		487	Ş
26611	TTATAGAAAGCTTAAACTTTTCAACTTCGATATTTCTTGTTGTCAAGCCTTTATCCTTTT	26670	망
487		487	Ş
26671	GTAAATTCCTGCAATAAAAATCTCAAACAGGAAGCCATCAAATTTAAGATGCATTTTGAT	26730	뮍
487		487	Ş
26731	AAAAGGTCATTGAAATTGTTATATGTTTCTTCTCAGTCATTTTTTTCAGTTTCCTATTTA	26790	뮍
487		487	Ş
26791	AAAAACTTTTTGTGTGTGAGAGCTAGAACTATGTTAGTGCTCCACTCTGATAGAGGCTA	26850	뮍
487		487	Ş
26851	CAATTCATTATGTCTATAGTGTATGATGAGTTGTTTTTTCTCTCCCCCCCC	26910	뮍
487		487	Ş
26911	AGAAGTTACTTCTGGAAATAAATGATATCGGTAAAGTAAAACGACATGGTGTTTGTT	26970	망
487		487	Ş
26971	TATTAGCTCACTGGGTTGACATATTTTTAAAGGTTTGTGATGATGAGTTCTGAGCCCATA	27030	망
487		487	ঠ
27031	CCATATTTTGGGATTGAGTTATATAGATGTGGTCACATCATCACACATGTGTTATTAAAA	27090	뫄
487		487	Ś
27091	AAATTGTTTGATTCTTTTTTCATCTGTAATTGAGTATTATTTTTAGGTTTTATTCTCAG	27150	DЬ

Search completed: November 22, 2005, 12:48:00 Job time : 5877 secs

8 8 8

487 ----- 487

음 성 음

성 음 성

8 8 8 8

음 성 음

8 8 8 B

```
Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -MODEL=frame+ p2n.model -DEV=xlh
-Q2/cgn2 1/USPTO spool/US09651651/runat 18112005 101830 20237/app query.fasta 1.711
-Q2/cgn2 1/USPTO spool/US09651651/runat 18112005 101830 20237/app query.fasta 1.711
-DB=N Geneseq -QFMT=fastap -SUFETN=rng -MINMATCH=0.1 -LÖOPCL=0 -LÖOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE==500 -MINLEN=0 -MAXLEN=200000000
-USER=US09651651 @CGN 1 542 @runat 18112005 101830 20237 -NCPU=6 -ICPU=3
-NO MMAD -LARGEQUERY -NEG SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                             Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                             NO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   on:
                                                                                                                                                                                  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                           Score
 2965
2944
2332
2310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                N_Geneseq_21:*
1: geneseqn198
2: geneseqn200
4: geneseqn200
6: geneseqn200
6: geneseqn200
7: geneseqn200
9: geneseqn201
10: geneseqn201
11: geneseqn201
12: geneseqn201
13: geneseqn201
14: geneseqn20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapop 10.0 , Ygapop 10.0 , Fgapop 6.0 , Delop 6.0 , I
                                                                                           Query
Match Length DB
 100.0
99.3
78.7
77.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2965
1 MGANSKSVTASFTVIAVFFL.....DSESIPGKRTAVWELDKSGY 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   November 22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4996997 seqs, 3332346308 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-651-651-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                       geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002as:*
geneseqn2002bs:*
geneseqn2003as:*
geneseqn2003bs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          geneseqn1990s:*
geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  geneseqn1980s:*
                                                                                                                                                                                                                                                                                geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
                                                                                                                                                                                                                                                                geneseqn2005s:*
 1641
1902
3896
3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2005, 03:07:09 ; Search time 635 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapext
Ygapext
Fgapext
Delext
3 3 12
AAS01082
2 ADF47823
AAC64438
AAC64448
                                                                                               ij
                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (without alignments)
5730.586 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9993994
Aas01082 Arabidops
Adf47823 Arabidops
Aac64438 Arabidops
Aac64448 Arabidops
                                                                                             Description
```

232 232 232			59.5 57.5 256	269 269 263 263		344 345 345 325 325 325 325 325 325 325 325 325 32
				8 8 8 8 9 9 8 9 9 9 11 1		15.0 11.6 11.4 11.0 11.0 110.1 110.1 110.1 110.1 110.1 110.1 110.1 110.1
1998 1998 1998	1236 1236 1236	2013 2016 2016 2425	7299 2427 2565 2047 1803	2012 2093 2223 709 709 2433	356 2398 2700 2700 2030 2479 2312 2312	328 1872 1893 2326 2004 1701 11986 11986 11986 11986 11986
12		10			22 20 90 90 90 90	
AUG14388 ABZ76360 ADF47827	AAV68568 ABZ59338 ABZ55554	AAS01341 ADG88186 ADF47819 ADG25155	ADR84383 AAC64434 AAL62906 ADF47829 ADF47821	AALG2913 ADF47830 ADF47830 AACG4449 AACG4339 AALG2907	AASO1097 AAL62909 AAL62908 AAL62910 AAL62910 AAL64432 AAC64433 ADF64443	AASO1096 ADE47831 ADE9409 ADW20631 ADE47835 ADE47817 AAC64440 AAC64440 AASO1342 ADE31342 ADE47816 AASO1346 ADE87255
Abz76360 A. thalia Abdf47827 Arabidops	Murine Mouse L 4 Mouse	ະິິ⊅⊅	Adr84383 Aspergill Aac64434 Arabidops Aal62906 Corn cDNA Adf47829 Aspergill Adf47821 Arabidops	arro o	Aal62909 Sunflower Aal62909 Sunflower Aal62908 Soybean c Aal62908 Soybean c Aal62905 Guayule c C Aac64432 Schizosac Adf47833 Crepis pa Aac644424 Schizosac	Aas01096 Corn ster Adf47831 Schizosac Adt99409 Fusarium Adw20631 Y. lipoly Adf47835 Crepis pa Adf47817 Yeast mem Aac64441 Saccharom Aac64440 Saccharom Aas01342 Yeast LCA Adf47816 Yeast Str Adf47816 Yeast Str Aac64441 Saccharom Aas01342 Yeast Str Aac64441 Saccharom

ი

ALIGNMENTS

31-MAY-2001

(first entry)

AAS01082 standard; DNA; 1641

BP.

```
Lecithin: Cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA: cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; ds.
                                                                                                                                                                                   Arabidopsis thaliana sterol acyltransferase LCAT2 DNA.
  30-AUG-1999;
                   30-AUG-2000; 2000WO-US023863
                                      08-MAR-2001.
                                                          WO200116308-A2
                                                                                                                            Arabidopsis thaliana.
  99US-0152493P
                                                                                                        Location/Qualifiers
                                                                                        /*tag=
                                                                             product= "LCAT2"
                                                                                                 .1641
                                                                                      Ø
```

```
Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                        á
                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                    Ś
                             밁
                                                       δ
                                                                                       맑
                                                                                                                δ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                      US-09-651-651-5 (1-546) x AAS01082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CC polynuclectides encoding the plant sterol acyltransferases LCAT
CC (AASO01081-AASO1104, AASO1311) and ACAT (acyl Coa:cholesterol
CC acyltransferase-like; AASO1311-AASO1319) are described. A yeast LCAT
CC related open reading frame, LRO1 gene sequence (AASO1342), and a rat ACAT
CC (AASO1105) cDNA sequence are also described. The polynucleotides encoding
CC LCAT or ACAT are used to produce LCAT or ACAT polypeptides. They can also
be used in a recombinant construct to transform a host cell (preferably
CC of a plant) or a plant. The recombinant construct is used to increase or
CC decrease the sterol content of the host cell or plant. It can be used to
CC alter oil production of the cell or plant preferably by increasing it.
CC The oil of the plant or the plant itself is used as a food product, or as
CC nutritional or dietary supplements, or in pharmaceutical compositions for
CC outering cholesterol. The oil can be used in foods e.g. margarine,
CC butter, cooking oil, and dressings e.g. salad dressings, mayonnaise,
CC cheese, processed meat, pasta, sauces, cereals, desserte, dips, chips,
CC baked goods, pastries, cookies, snack bars, confections, chocolates, and
CC provide a plant with tolerance to stress and insect damage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New isolated nucleic acyltransferase-like -like polypeptides, f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present sequence encodes for Arabidopsis thaliana legithin:cholesterol acyltransferase-like 2 (LCAT2). Several
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 5; Page 77; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lassner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MONS ) MONSANTO
                             301
                                                          101
                                                                                      241
                                                                                                                                                181
                                                                                                                                                                                                          121
 121
                                                                                                                   81
                                                                                                                                                                            61
                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                              21
                                                                                                                                                                                                                                                                                                                             μ.
                                                                                                                                                                                                                                                                                                                                                         بر
                                                                                                                                                                   AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                    IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                            ThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeu
                                                                                                        LysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGln
                                                                                                                                                GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                            LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
AspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCys
                              ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                           CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Van Eenennaam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP; 438 A; 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                 7.46e-288
2965.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        c acid encoding plant lecithin:cholesterol e or acyl (coenzyme A) CoA:cholesterol acyltransferase for modifying the sterol content and oil production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ü
                                                                                                                                                                                                                                                                                                                                                                                        (1-1641)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      378
                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G; 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Τ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                  1641
546
0
0
                                                          120
                                                                                         300
                                                                                                                   100
                                                                                                                                                                              80
                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                 40
                             360
                                                                                                                                                240
                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                            밁
                                                                        S
                                                                                                     밁
                                                                                                                           S
                                                                                                                                                             밁
                                                                                                                                                                                         Ş
                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                                       1021
                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                   441
                                                                                                                                                                                                                                                                                                                                                                                                                                   341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141
                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                               LeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                          MetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTGAGTTTGGTATAGAAGCAAATTGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
AsnIleThrMetAlaProGlnProGluHisAspGlySerAspValHisValGluLeuAsn
                                                             AspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysVal
                                                                                                       GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                         GlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGly
                                                                                                                                                                CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAACTGAA
                                                                                                                                                                               ProSerGlyLy8ProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGlu
                                                                                                                                                                                                                          LygAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAla
                                                                                                                                                                                                                                                                                                    LysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIle
                                                                                                                                                                                                                                                                                                                                             CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                       ATGGAATGTGGCCTTCCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLy8Hi8TyrLeuLy8Trp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                     1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                               1440
                                                                           480
                                                                                                                                                                                             440
                                                                                                                                                                                                                            1260
                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                          380
                                                                                                                                                                                                                                                                                                                                                                                                         1080
                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                      460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
```

밁

밁 Ś 밁 S

밁 ঠ

```
The present invention describes a nucleotide sequence (I) derived from a CC nucleotide sequence encoding an acyltransferase polypeptide comprising at CE least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one CC amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase CC polypeptide, where the encoded active membrane independent CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC acid thioesters such as triacylglycerols, diacylglycerols, waxesters, CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carbohydrates and acylated amino acids. Also described: (I) a CC acylated carbohydrates and acylated amino acids. Also described: (I) a CC acylated carbohydrates and acylated amino acids. Also described: (I) a CC acylated carbohydrates and acylated amino acids also operably linked to at least one promoter region CC translated region which is operably linked to at least one promoter contributed in a host; (2) a vector comprising (II) (3) a host cell comprising (II) or the vector; (4) producing an cimproved active membrane independent acyltransferase polypeptide,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-MAY-2002; 2002SE-00001581.
29-MAY-2002; 2002US-0383889P.
20-JAN-2003; 2003SE-00000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                active membrane independent acyltransferase; fatty acid ester; fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                      New nucleotide sequence encoding an improved acyltransferase polypeptide useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acyltransferase; enzyme; membrane-spanning region; active membrane independent acyltransferase; fatty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADF47823 standard;
                                                                                                                                                                                                                                                                                                                                      Claim 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-MAY-2003; 2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO2003100044-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADF47823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SCAN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2004-053268/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                                                                                                                                                                                                                                                                                                      SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgThrAlaValTrpGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTGATAAAAGTGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuAspLysSerGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                                                                                                                                                                                                                                        ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ghosal
                                                                                                                                                                                                                                                                                                                                      8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA; 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acyltransferase nucleotide
                                                                                                                                                                                                                                                                                                                                    91pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lindqvist Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   546
                                                                                                                                                                                                                                                                                                                                    English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Banas A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                    region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                   a a
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                              Ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
   S
                                    밁
                                                           S
                                                                                             밁
                                                                                                                        Ś
                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               comprising providing the above host cell and a growth medium preparing a host cell culture, culturing the host cell culture and recovering the host cell culture and recovering the story control of the method in acyltransferase polypeptide; (5) a polypeptide obtained by the method in (4), where the polypeptide at least is an improved active membrane independent acyltransferase polypeptide; (6) an oligonucleotide specifically hybridising to (1) under stringent conditions; and (7) a kit comprising the above polypeptide and a stabiliser. The nucleic acid molecule (1) and the polypeptide are useful in producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids present in animal and plant raw material. The present sequence is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
         221
                                       601
                                                                 201
                                                                                                                                                        481
                                                                                                                                                                                  161
                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21
PheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrp
                                                                                                                 AlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnVal
                                                                                                                                                                      ProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThr
                                                                                                                                                                                                                               ValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSer
                                                                                                                                                                                                                                                                          GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                       AspProGlyTyrI1eThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCys
                                                                                                                                                                                                                                                                                                                                  ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                   ThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeu
                                                                                                                                                                                                                                                                                                                                                                                              AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                            LysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTTGCGGTGGCCGAACGGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                          CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                 GTTGAGTTTGGTGTAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                       TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.2e-285
2944.00
99.63%
99.08%
99.29%
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x ADF47823 (1-1902)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Đ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1902
541
3
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٦,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                     180
                                                                                                                                                                                                                                              160
                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
             240
                                          660
                                                                                                 600
                                                                                                                              200
                                                                                                                                                           540
                                                                                                                                                                                                                   480
```

밁

CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG

720

```
RESULT 3
AAC64438
ID AAC6
XX
AC AAC6
XX
AC AAC6
XX
DT 12-F
XX
DE Arab
                                                                                                                                                                                                         음 성
                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                 음 성 음
                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                           ક
                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                밁
                                                                                                                S
                                                                                                                                   밁
                                                                                                                                                  중 유
                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                            밁
                                                          AAC64438
 Arabidopsis
                    12-FEB-2001
                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                1621
                                                                                                                                                                           1501
                                                                                                                                                                                                                1441
                                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                         461
                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                             401
                                                                                                                                                                                                                                                                                                                                                                                                                                 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgLeuLeuSerAenSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAenCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThr 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIle
                                                                                                                                                                                                                ASDII eThrMet AlaProGlnProGluHi SASpGlySerASpValHisValGluLeuASD
                                                                                                                                                                                                                                                      AspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysVal
                                                                                                                                                                                                                                                                                                        GlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGly
                                                                                                                                                                                                                                                                                                                                                                                                               AAGTTGTATCATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAAGACCACCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IleAsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
                                                          standard;
                                                                                                CTTGATAAAACAAATCAC
                                                                                                          LeuAspLysSerGlyTyr 546
                                                                                                                                      TACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAACCGCAGTCTGGGAG
                                                                                                                                                 TyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgThrAlaValTrpGlu
                                                                                                                                                                                                                                                                                              GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                   CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTATGAAACTGAA
                                                                                                                                                                                                                                                                                                                                               ProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGlu
                                                                                                                                                                                                                                                                                                                                                                          LysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                           LysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGAATGTGGCCTCCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
 thaliana PDAT genomic
                                                          DNA;
                    entry)
                                                          3896
                                                                                                1638
  DNA
  SEQ ID
                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                         1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                       1620
                                                                                                                                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           260
                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                460
                                                                                                                                                                                                                                                                                                                                                       440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
```

```
PDAT;
EST; e
                                                               01-APR-1999;
10-JUN-1999;
                                                                                                   28-MAR-2000;
                           (BADI ) BASF
                                                                                                                                                                                                 ; phospholipid:diacylglycerol acyltransferase; triacylglycerol; TAG; expressed sequence tag; fatty acid; oil content; ds.
  A
                                                  99EP-00106656.
99EP-00111321.
2000US-0180687P.
                            PLANT SCI
                                                                                                   2000WO-EP002701
   Stahl
Ġ
                            GMBH
   Lenman
   Σ,
   Banas
   P
     Ronne
   Ħ,
```

Phospholipid:diacylglycerol acyltransferase enzymes in the pathway for triacylglycerol production and DNAs encoding the producing triacylglycerol, or for transforming any cell or increase oil content. the biosynthetic ng them, useful for organism

2000-665012/64.

Claim 6; Page 60-61; 97pp; English

The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Arabidopsis thaliana PDAT genomic DNA

Sequence 3896 B₽; 1042 A; 725 Ç 769 ဝှ 1360 Τ, 0 ď 0 Other

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                 Pred. Score:
                                                                                Ś
                                                                                                               δ
               δ
                                             5
                                                                 밁
                                                                                                 밁
밁
                                  밁
                                                                                                                                 US-09-651-651-5 (1-546) x AAC64438
                                                                                                                                                                                                 Alignment
                                                                                                                                                                                          No : :
 181
                                  121
                 61
                                                 41
                                                                   61
LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                           IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
                                                                                                          MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                   1.33e-223
2332.00
41.58%
41.58%
78.65%
                                                                                                                                  (1-3896)
                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                  3896
541
0
5
759
11
```

241

240 80 180 60 120 40 60 20

81

81

⊥ув-----

8 8 8 8 8

B 8 B 8 B B B

CTTCTCTTTTTATGTAAGATAAGCTAAGAGCTCTGGTCGTCGTCTTTTGCAGGTTGAC 1079 Qy 349 uSerPheThrAlaArgGluLeuAlaAspGlyFhrLeuPheLyBAlaIleGluAspTyrAs rPheGluThrAlaLeuLyBLeuArgGlyGlyFroSerIleValPheAlaHisSerMetGl 197

ş

B & B & B & B & B

Ś

ð

밁

S 밁 Ş В

밁

```
2697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2457
                                      3477
                                                                                                             3417
                                                                                                                                                                                                                                                             3297
                                                                                                                                                                                                                                                                                                                                  3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2577
484
                                                                          464
                                                                                                                                                                                                                                                                                                455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTACTAAATGTATGAAGCTGTCTGTCATAGGTTGGTTATTACTTTGCCCCAAGTGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu-----
                                    aGlyProIleThrGlyAspGluThr-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCAAGGTAATTTTCCGCAATGGCAGAAGTAAAACAGGAAGGCAAAGTCTTCTGTATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1Ser-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCTTATCCTGATAATTGGATCATCACGGATATCATTTATGAAACTGAAGGTTCCCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATATCTTTTTGAATTATGATTTATCTTCTCCCTTGCATCTTATGCTATTAAGCGTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGCATTCTCAATATCACATTATGCGTTGACTTTGTTATTATTTCCCCCATTTGGTTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCTCATCTAAAGACAGAGGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACTATACTTTTCAGGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    etAla-Pro-----
                                                                                                             GTACACTGCAATATTGACTCTCCGCTACTTTTATTGATTATGAAATTGATCTCTTATAGG
                                                                                                                                                                                    TGGACCTATAACTGGGGÄTGÄGÄCGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT
                                                                                                                                                                                                                                                                                                                                    CTAGTTCATATCTTGATTGTGCAATATCTGCAGGTCTGGAACTGTGGTTGATGGGAACGC
                                                                                                                                                                                                                                                                                                                                                                                                             AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAAATTTGTTTTAAGAAACCGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTTTTATCATTCCTTTTGAGCTTAGTGGATGATCAGTGGCTTAAAGTGGGAAGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTAGTGGCATGTTATCTCAGTTGCATAAGCAAATTATTAAACAACTAAAATTTAAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rProAspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -TyrHisAspAspProValPheAsnProLeuThrProTrpGl
                                                                                                                                                                                                                                                                                                                                                           ArgSerGlyThrValValAspGlyAsnAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValGlyTyrTyrPheAlaProSerGlyLy
                                                                                                                                                   V--V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2516
                                    3536
                                                                                                                                                                                      3416
                                                                                                                                                                                                                                                                                                                                      3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2576
                                                                          484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   414
 486
                                                                                                                                                  464
                                                                                                                                                                                                                                                                                                  463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            414
```

밁 Ş 8 Ş 밁 Ş В

δ

Ś

밁

Ś 밁

ð

TGGCTCCCCAGGTACTCTTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC

Sequence

3896

BP;

1042

733 ü

760

G 1360

Η.

0 ς.

Other;

PDAT genomic

DNA A;

á 밁 Ś 밁 δ 밁 Ś 밁 δ 밁 Ş 밁 Ś 밁

```
ARESULT 4
AAC64448
ID AAC6
XX AAC6
XX ACA
XX PDAT
XX PDAT
XX PDAT
XX PDAT
XX PDAT
XX PDAT
XX ACA
PR 01-A
PR 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ર્
                                                                     The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                         Phospholipid:diacylglycerol acyltransferase enzymes in the bio pathway for triacylglycerol production and DNAs encoding them, producing triacylglycerol, or for transforming any cell or org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAC64448;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAC64448
                                                                                                                                                                                                                                                                                                                                                                   Claim 6; Page 95-96; 97pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dahlqviet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana PDAT
                                                                                                                                                                                                                                                                                                                                                                                                                      increase oil content.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BADI )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            phospholipid:diacylglycerol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCCTTGATAAAAGTGGGTAT 3893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; 99EP-00106656.
; 99EP-00111321.
; 2000US-0180687P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Stahl U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tag;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acyltransferase; triacylglycerol;
y acid; oil content; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO:10b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ronne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      biosynthetic
nem, useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               546
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
```

Qy 145 eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165 	Qy 127GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIl 145	Db 780 TTCAATTTGATATCATCTTGTTGTGATATAATATGGCTAAGTTCATTAATTTGGTCAATT 839	721 AGAATTGGATCCAGGTTACATAAC-AGGTAGTTTCGGATTTTTCTTTTGAGTTTTC 77	98 rAnnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleTh	PPROTY 98	541 GGTCATTTTACTTGTGCATTGTGATTCTTTTGGTTGTTGCTTACTGATCGACGTGATGGA 6	Qy 81 81	8	1 TCTTTCCCATCGCTTTTGGTTCGCTAAATGTAGCGCAATGAATG	36	81	Db 301 AATTCCAAGCGAAATATAGCAATGAAGCATGTCTCGTCTCTTATTGATTCGTTCATTA 360	Qy 81 81		81 IVB	Qy 61 AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr 80		41 LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu 60	Qy 21 IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys 40	Qy 1 MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu 20	US-09-651-651-5 (1-546) x AAC64448 (1-3896)	mismacches: Indels: Gaps:	nent Scores: 2.18e-221 Length: 2310.00 Matches: 41.28% Conservat
	1919			Db 1739 CATGTGACATATTGACATGCGCTTCTCATGTTTTTTGTTGGCAAGGCTTCAGGGAACTGC 1798 Oy 260 aArgLeuLeuSerAenSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCy 280	Db 1679 GAGAAGAAACTTTGACTGAAATCTTTTTTTTTTTAATAGGCTATGATTTGTTTATTGAAAT 1738 Qy 258GlYThral 260		Qy 257 257	u	Db 1499 TTTGAAAGTATTACTTTTGTTAATTGAACTGCTGTACGCGATATGGTATCTGTAGATCTT 1558		1-2	257	79 AATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGTGACCTCTGA	1319	32GlyAlaProLeuGlySerValGluAl	1259 CCTTAAGTTACCATTTTATTTTTTCTCTAATTGGGGGAGTTATGTTGTGACTTACTGGAT	Db 1200 TTTGAAGTGGCTTGATCAGGATAICCAIGCTTATTTCGCTGT-IGGTACCGGCLACLAL 1220 Qy 231 231	217 rLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaVal	TAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTA	1080	177 rPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGl	Qy 176LeuTh 177	Qy 165 uGluargaspleuTyrPheHisLysLeuLys

```
맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          중 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          중 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ર્
                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음 성
S
                              밁
                                                           S
                                                                                              8
                                                                                                                      ঠ
                                                                                                                                                                                          5
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2158
                                                                                                                                                                                                                             2877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2038
                                                                                                                                                                                                                                                                                            2817
                                                                                                                                                                                                                                                                                                                                                                                                                         2697
                                 3057
                                                                                                2997
                                                                                                                                                                                                                                                                                                                                                         2757
                                                                                                                                                                                             444
                                                                                                                                                                                                                                                            424
                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              329
 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTTACAGAAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCCTTCCCCACCCTTTT
                                                                                                                                                                                                                        SProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGATGTGTATCCATC
                                                                                                                                                                                                 1Ser----
                                                                                                                                                                                                                                                                                          GGTACTAAATGTATGAAGCTGTCTGTCATAGGTTGGTTATTACTTTGCCCCAAGTGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAACCTTATTATTGATTATCAGTTCTCTCCTTATATTATGGAATGTCTTTTCGTTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAATATTGCTCATCGATCATCACTTGCTGGCTTCTTGTACGTCAAATTGTTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCAGATAGCAAGAGGATGTTACACCCAGTTAAAGAAGTA-CGTACCTTTCTTTGTGATAA 2276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyrAs
                                                                                                                                                             GTCAAGGTAATTTTCCGCAATGGCAGAAGTAAAACAGGAAGGCAAAGTCTTCTGTATCAG
                                                                                                                                                                                                                                                                                                                                                           AATATCTTTTTGAATTATGATTTATCTTCTCCCTTGCATCTTATCCTATTAAGCGTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCTCATCTAAAGACAGAGGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACTATACTTTTCAGGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCTCTATATCAATTGTTCATATGCTTTGTCTTTCTTACTATAAGAAACAAGTATAATCA
                                 TTTTTTATCATTCCTTTTGAGCTTAGTGGATGATCAGTGGCTTAAAGTGGGAAGAGGTGT
                                                                                                TCTAGTGGCATGTTATCTCAGTTGCATAAGCAAATTATTAAACAACTAAAATTTAAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCATTCTCAATATCACATTATGCGTTGACTTTGTTATTATATTCCCCCATTTGGTTTGC
                                                                                                                                                                                                                                                                                                               -----ValGlyTyrTyrPheAlaProSerGlyLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -TyrHisAspAspProValPheAsnProLeuThrProTrpG1
                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----------
                                                                                                                                -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2097
                                                                                                3056
                                                                                                                                                                                                                                                                                              2876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2217
                                3116
                                                                                                                                                               2996
                                                                                                                                                                                                                             2936
                                                                                                                                                                                                                                                            444
                                                                                                                                                                                                                                                                                                                            424
                                                                                                                                                                                                                                                                                                                                                                                                                           2756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 369
   445
                                                                445
                                                                                                                                445
                                                                                                                                                                                                 445
                                                                                                                                                                                                                                                                                                                                                                                           414
                                                                                                                                                                                                                                                                                                                                                                                                                                                           414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                329
 ARSSULT 5
AASSOLO 5
ID AASSO
XX AASSO
XX AASSO
XX AASSO
XX COIN
XX Leci
XX Leci
XX ACOIN
XX COIN
XX CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멂
                                                                                                                                                                                                                                                                                AAS01096;
                                 08-MAR-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          508
```

```
Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; corn; Arabidopsis thaliana; expressed sequence tag; EST; ss.
                                                                                                   Corn sterol acyltransferase LCAT EST sequence
                                                                                                                                               31-MAY-2001
                                                                                                                                                                                                                           AAS01096 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              etAla-Pro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTACACTGCAATATTGACTCTCCGCTACTTTTATTGATTATGAAATTGATCTCTTATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGACCTATAACTGGGGATGAGACGGTAAGCTCAGAAGTTGGTTTTGAAATTATCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTAGTTCATATCTTGATTGTGCAATATCTGCAGGTCTGGAACTGTGGTTGATGGGAACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCATGAAACATGACACTTGTATCAAAGATAACTAGCAAAACAAAACTAACCCATTTCTG
                                                                                                                                                                                                                                                                                                          TCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAAAGTGGGTAT 3893
                                                                                                                                                                                                                                                                                                                             SerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                          GACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACTCCTCAAGAACTTGTATTAATCTAAACGAGATTCTCATTGGGAAAATAAAACAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCTCCCCAGGTACTCTTTTTAGTTCCTCACCTTATATAGATCAAACTTTAAGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTTCATATTATTAGGAGTAGTCGTGCTTTTAAAAAATTTGTTTTAAGAAACCGAAAAA
                                                                                                                                             (first entry)
                                                                                                                                                                                                                             cDNA;
                                                                                                                                                                                                                             328
                                                                                                                                                                                                                             ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgSerGlyThrValValAspGlyAsnAl
                                                                                                       #3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .-----Gln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           455
                                                                                                                                                                                                                                                                                                                                                                                              3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               486
```

WO200116308-A2

30-AUG-2000; 2000WO-US023863

```
Best Local Si
Query Match:
DB:
RESULT 6
ADF47831
ID ADF4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present sequence for corn LCAT (lecithin:cholesterol acyltransferase-CC Like) EST sequence #3 is closely related to the Arabidopsis thaliana CC LCAT2 sequence. Several novel polynucleotides encoding the plant sterol CC acyltransferases LCAT (AASO01081-AASO1104, AASO1341) and ACAT (acyl CC coA:cholesterol acyltransferase-like, AASO1101-AASO1319) are described. A CC yeast LCAT related open reading frame, LRO1 gene sequence (AASO1042), and CC a rat ACAT (AASO1105) cDNA sequence are also described. The CC polynucleotides encoding LCAT or ACAT are used to produce LCAT or ACAT CC polynucleotides. They can also be used in a recombinant construct to polypeptides. They can also be used in a recombinant construct to construct is used to increase or decrease the sterol content of the host cell or plant. It can be used to alter oil production of the cell or CC cell or plant. It can be used to alter oil production of the plant construct is used as a food product, or as nutritional or dietary the supplements, or in pharmaceutical compositions for lowering cholesterol. The oil can be used in foods e.g. margarine, butter, cooking oil, and CC dressings e.g. salad dressings, margarine, butter, cooking oil, and cookies, snack bars, confections, chocolates, and beverages. The CC cookies, snack bars, confections, chocolates, and beverages. The CC alteration in sterol content and/or composition can also provide a plant of the plant of the plant of cookies, snack bars, confections, chocolates, and beverages. The cookies, snack bars, content and/or composition can also provide a plant of the plant of the plant of cookies, snack bars, confections, chocolates, and beverages. The cookies, snack bars, confections, chocolates, and beverages. The cookies cookies, snack bars, confections, chocolates, and cookies and cookies and cookies and insect damage
                                                                                                                5
                                                                                                                                                          밁
                                                                                                                                                                                             á
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                         გ
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-651-651-5 (1-546) x AAS01096 (1-328)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase-like polypeptides, for modifying the sterol content and oil production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lassner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MONS ) MONSANTO
                                                                                                                    160
                                                                                                                                                            214
                                                                                                                                                                                                 140
                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                              100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Page
                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                   35
                                                                                                                                                                                   CysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeu 159
                                                                                                                                                                                                                                                                                                                                                           GlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGlu 119
                                                                                                                                                                                                                                                                                                                                                                                                                        ThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsn
                                                                                                        SerProThrLysLeuGluGluArgAspLeuTyrPheHis
                                                                                                                                                                                                                                                                                                                                                                                                     CTGGACCCTGGTTATATAACAGGTCCTCTCTCTTCAGTATGGAAAGAATGGGTCAAATGG
                                                                                                                                                                                                                                                                              LeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrp 139
                                                                                                                                                                                                                                                                                                                      CAGATAGACCATCCCGAATGCAAGTCAAGGCCTGATAGTGGTCT-TCTGCAATTACAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Van Eenennaam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0152493P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.46e-35
444.00
92.47%
86.02%
14.97%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Α;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ς;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
80
7
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Other;
                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                                                                          153
                                                                                                                                                                                                                                                                                                                                                                                                       94
                                                                                                                                                              273
```

ADF47831 standard; DNA; 1872

Alignment Scores: Pred. No.:

BP;

598

ð

297

<u>ن</u> 405

<u>۾</u> 572

Ή. 0 Ċ.

0 Other;

1872

```
CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC acid thioesters such as triacylglycerols, diacylglycerols, waxesters, CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carbohydrates and acylated amino acids. Also described: (1) a CC nucleotide sequence molecule (II) comprising at least one promoter region CC which functions in a host, where the promoter region is operably linked to at least one (I), which is operably linked to at least one non-CC translated region which functions in a host; (2) a vector comprising (II) CC; (3) a host cell comprising (II) or the vector; (4) producing an CC improved active membrane independent acyltransferase polypeptide, CC comprising providing the above host cell and a growth medium preparing a host cell culture, culturing the host cell culture and harvesting the cC host cell culture and recovering the improved active membrane independent acyltransferase polypeptide; (5) a polypeptide obtained by the method in CC independent acyltransferase polypeptide; (6) an improved active membrane independent acyltransferase polypeptide; (6) an oligonucleotide specifically hybridiaing to (I) under stringent conditions; and (7) a kit comprising the above polypeptide and a stabiliser. The nucleic acid completed or fat-soluble molecules, in removing undesirable fat or in CC modifying lipids present in animal and plant raw material. The present xx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-MAY-2002; 2002SE-00001581
29-MAY-2002; 2002US-0383889P
20-JAN-2003; 2003SE-00000142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     active membrane independent acyltransferase; fatty acid ester; fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New nucleotide sequence encoding an improved acyltransferase polypeptide useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schizosaccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acyltransferase; enzyme; membrane-spanning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schizosaccharomyces pombe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2004-053268/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-MAY-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO2003100044-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADF47831;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 5; SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SCAN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SCANBI SCANDINAVIAN BIOTECHNOLOGY RES AB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention describes a nucleotide sequence (I) derived from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ghosal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NO 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pombe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lindqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acyltransferase DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NO:16
```

a 6

á

밁 Ş

á 밁 Ş 밁

В

377

357

1395

1530

1569

1482

1437 397

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-651-651-5 (1-546) x ADF47831
                                                                                                                                                                                                                              1117
                                                                                                                                                                                                                                                                                               1066
                              1297
                                                                                             1237
                                                                                                                                                                                                                                                                                                                                                              986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138 LysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505 ATTCCTTACTTTAGGAAACGTCTTTGGGGTAGCTGGTCTATGCTGAAGGCAATGTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         445
320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                          218 LeuLysTrpLeuAspGlnHisileHisAlaTyrPheAlaValGlyAlaProLeuLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTATGGTTCCTGGTGTTATCAGCTCAGGATTAGAAAGTTGGTCGTTTAATAATTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCys---
                                                                                                                                                                                                                                                                                                                                                                                         SerValGluAlaIleLysSerThrLeuSerGly-----ValThrPheGlyLeuProVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaile 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---ProTyrThrProLeu------AspPheAsnProLeuAspLeuValTrpLeu
IleIle----AsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsn
                                                                                                                            CysAspGluGluGluTyrGln------
                                                                                                                                                                                                                              GTTCGCACTATGGGAGGAGTTAGTTCTATGCTTCCTAAAGGAGGCGATGTTGCTCCAGAT
                                                                                                                                                                                                                                                           -----PieuTrpLeuMetProPheSerLysAsnCysLysGlyAsp
                                                                                                                                                                                                                                                                                             -----ACATTAAACATTTTGGAAAAATTTTTTCCCGTTCTGAGAGAGCCATGATG 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCACAGGTTACGTACTATTTTTTAAGTGGGGTTGAAGCTGAGGGCTACGGAAATGGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTGAGTACAGCAACATTGTACATAAGAAAAAGGTAGTGTTGATTTCTCACTCCATGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGTTATCATATGCAAATTTAGAGGAACGTGATAAATATTTTTCAAAGTTAAAAATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAAACCTTGCTGCAATTĠĠŤTATĠĀĠCCTĀĀŤAACATGTTAAGTGCTTCTŤĀĊĠĀŤŤĠĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATTTTTTATCACGGGCTAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAAACCGGCTTGGATCCGAAGGGAATTAAGCTGCGAGCAGCTCAGGGGTTTGAAGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGGACCACGATGAATTTGACATAGATGATGCATTACAATTTTTAAAAAATGTTACAGAT 1296
                                                                                                                                                              GATCTTAATCAAACAAATTTTTCCAATGGTGCAATTATTCGATATAGAGAAGACATTGAT 123
                                                                                                                                                                                             AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis
                                                                                                                                                                                                                                                                                                                             SerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSer-------
                                                                                                                                                                                                                                                                                                                                                                                                                               CCGACTTGGGTTAATGATCATATTGAAGCATTTATAAATATATCGGGATCTTTGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       345.00
38.13%
23.73%
11.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-1872)
                                                             --SerLysTyrSer-----GlyTrpProThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----TGGATTTGGAGTAAGTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           117
71
168
137
                                                                                                                                                                                                                                                                                                                                                               1065
                                                                                                                                                                                                                                                                                                                                                                                                                               1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
 Renz A,
Lazarus
             WPI; 2004-737701/72.
P-PSDB; ADT99410.
                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                            LCAT; lecithin-cholesterol acyltransferase; gene; ss; polyunsaturated fatty acid; PUFA; transgenic; acyltransferase; lipid metabolism; animal food; human food; cosmetic; pharmaceutical.
                                                                                                                                             31-MAR-2003; 2003DE-01014759
17-OCT-2003; 2003DE-01048996
                                                                                                                                                                                                                                                                                                                                                                               Fusarium sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fusarium lecithin-cholesterol acyltransferase (LCAT) cDNA Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-DEC-2004 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADT99409 standard;
                                                                                                                                                                                                 26-MAR-2004; 2004WO-EP003224
                                                                                                                                                                                                                                                              WO2004087902-A2
                                                                                                                (UYBR-) UNIV BRISTOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            398
                                                             Bauer J,
s CM, Qi B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyProIleThrGlyAspGluThrValPro-TyrHisSerLeuSerTrpCysLysAsnTr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTTGGCAAACAAAAGGTTTAATCCTGCTAATACAA 1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GATGGTGATGGAACTTTACCAATATTAGCCCTTGGTTTGGTGTGCAATAAA 1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAla 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrPheAla-----ProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIle 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyr 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---AATCCGCTAGAAACTAGTCTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pLeuGlyProLysValAsnIleThrMetAlaProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------ATTTATTGCGTTCACGGGGTCGGAAAACCAACTGAGAGAGGTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlnLeuLysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                               /*tag= a
/product= "LCAT protein"
                                                               Frentzen M,
Abbadi A,
                                                                                                                                                                                                                                                                                                                                 .1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDNA; 1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----TATGCTCCTGATATGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВP
                                                                  Soezer N,
Heinz E;
                                                                                  Keith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 487
                                                                                  S
                                                                                   Fraser
```

밁 Ş

δ

밁 S

밁 δ 밁 Ś 밁

H.

밁

δ В δ

á 밁 Ś д á

밁

S 밁 δ

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CC harvesting the organisms. Specifically, it refers to nucleic acid constructions are referred to nucleic acid constructions. It is particular, lysophosphatidic acid acyltransferase activity, in acyltransferase, discylglycerol acyltransferase or lecithin-cholesterol consistency of the protein addition, nucleic acids that encode proteins involved consistency acid metabolism may be included such as acyl-coA constructed fatty acid metabolism may be included such as acyl-coA constructed fatty acid hydroxylase or acyl-acyl carrier protein constructed as oils, lipids or free fatty acids including arachidonic, concerned as oils, lipids or free fatty acids including arachidonic, concerned as oils, lipids or free fatty acids including arachidonic, concerned as oils, lipids or free fatty acids including arachidonic, concerned as oils, including the derived compositions, can be used in a cids, oils or lipids, including the derived compositions, can be used in consistency of the invention acyltransferase (LCAT) cDNA clone (coding sequence) of the invention.
                                                                                             á
                                                                                                                                                                                          S
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
S
                                               밁
                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-5 (1-546) x ADT99409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention relates to a novel method for preparing polyunsaturated fatty acids (PUFAs) in a transgenic non-human organism by the introduction of any of 20 specific nucleic acid sequences, their derives or homologues thereof, followed by culturing and then harmonic the control of the con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Preparing cosmetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1893 BP; 477 A; 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         веquences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No::
  167
                                                                                                                                                       655
                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                              487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        319
                                                  703
                                                                                                     147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                         GAGGTTTGGAAGAAGCACGTCATGCTCGACAAGAGGACGGGCCTTGACCCCGCCTGACGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerLysLeuSerGly-----
  ArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGly 186
                                                                                     AlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrGlnLeuArgAlaTrpSerIle-----LeuAspCysProTyrThrProLeuAspPhe 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCGATCCGAGGGTCTAGGAGTTCACCATCCTATGATCATGATACCTGGTGTTATCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeulleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHis---GlyAspTyr 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   polyunsaturated fatty acids, useful in foods, animal feeds, and pharmaceuticals, by growing organisms transformed with that encode specific acyltransferases.
                                                                                                                                                                                                    GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGlu
                                                                                                                                                                                                                                                                                                                                                                                                       AsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----AGAAAACGACTTTGGGGTAGTTGGACAATGATGAGAGCTCTGGTTATGGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTGTTCAGGGCGAGCGGGACATTGCCGAATCGTACGAGCCATTCTCTGTTGGCGAAAAG 378
                                                                                                                                                                                                                                                          AAGTTGAGGGCTGCCCAAGGGTTCGATGCGACCGATTTCTTCATCACGGGATAT-----
                                                                                                                                                                                                                                                                                                    LysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGGACTCGAATCGTGGGGTACGGCTAATATCTCGAAACCCTACTTT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 36; 270pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.68e-23
339.00
38.23%
24.91%
11.43%
                                                                                                                                                       TGGATCTGGAGCAAAATCTTTGAGAATCTCGCATCCATCGGCTACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-1893)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  509 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --------ileIleIleProGlyPheAlaSer 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  434 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1893
146
78
224
138
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transformed with new
                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                               106
                                                                                                                                                                                                          146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                          654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                             S
                                                                               밁
                                                                                                                                                                          밁
                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1057
                                                                                                                                                                                                                                                                                                                                                                                         1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           763
                                                                                                                                                                                                                                       457
                                                                                                                                                                                                                                                                                                                                       437
                                  487
                               GlnProGluHis-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Leu-----TyrHisAspAspProVal-----PheAsnProLeu---ThrProTrpGlu 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAsp 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACTGGACAACTCCTGATCGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCTGGATCAACATCAGCGGATGCATGCTTGGAGCAGTCAAGGATTTGACCGCTGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAAAAGTCGTCCTCGCATCACACAGTATGGGGAGCCAAGTCCTTTACTATTTTCTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGGACCGCTACTTCACTCGGCTAAAGTCGCATATCGAAAATCGCGGTGGCCACTGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGly 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrAspProAsp----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThr 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGCCAGAACCGTTCATATGGA-----TCTCTCTTGAACTTTAGGGTCGGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIleProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGGGATATCCTCCATGTTGCCCATCGGCGGCAACTCTGTATGGGGTAACTTGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCGGCGAGATGCGCGACACAGCTCAACTGAACCCGTTCGCTATTTACGGCCTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGGTGCAGTCAGAAAGAGGCGGACGCGGTGGGCCGGATTGGGTTGAGCGTCACATTGAC
                                                                                                                                                                                                                                                                                                                               TyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGly 456
                                                                                                                                                                                                                                                                                                                                                                                         TACTTCTATAAGCCACCGGATCAGCCATCATTGACCAACCTCAACATCACAATAGATACG 1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCGAAGCCAATGAGAATGACCCCAAGAAGTGGATCAATCCTCTCGAGACGCGATTGCCA 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrp------
                                                                                                                                                                                  ATGGGCGAGGGAGATGGTACCGTGAACCTCCTCAGTACAGGCTACATGTGTAATCATGGC 1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTATCAAGACCAGATCAAGGGCAGTTATTCTCGGGGCATTGCTCATTCCATAGATGAG 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGCTTAACACAACG-
                                                                                  TGGAATATGAAACGCTACAACCCAGCAGGCGTCAAGGTTACAGTTGTCGAGATGCCTCAC
                                                                                                                                                                                                                                  ProlleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsn-----
                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GAAAAGTTCTTGAGTAAAGAGGAGAGAGCCGAGATCTTTCGCGGCATG 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----LeuMetProPheSerLysAsnCysLysGlyAspAsnThrSerTrp
                                                                                                                               ---LeuGlyProLysValAsnIleThrMetAlaPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -AACTTTACC---GTCGAGGAAGGTGTGTCCTAT 1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerLysArgMetLeuHisGlnLeuLysLys 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ValThrPheGlyLeuProVal
                                                                                                                                                                                                                                                                                       GTGGATCATGGCGTTGTC
     AspGlySerAspVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GACGACTIG
```

1179

1230

1302

307

1164

287

1002

246 942

255

882 206

1056

272

436

1578

1698

486

```
ADW20631
ID ADM2
XX ADW2
XX ADW2
XX ADW2
XX MAIN
XX MAIN
XX MAIN
XX MAIN
XX MAIN
XX WO20
XX YAY1
XX WO20
YT CDS
FT CDS
FT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
              The invention relates to novel isolated nucleic acids encoding diacylglycerol acyltransferases (diacylglycerol O-acyltransferases, DGAT, EC 2.3.1.20) and phospholipid:diacylglycerol acyltransferases (PDAT, EC 2.3.1.158) and the encoded polypeptides. The nucleic acids and methods of the invention may be useful for increasing triacylglycerol (TAG) content in transformed host cells, especially in oleaginous yeasts. The triacylglycerol produced preferably comprises long-chain omega-3/omega-6 polyunasturated fatty acids (PUFAs). The methods allow production of pUFAs with improved nutritional qualities which may be utilized as dietary supplements, particularly for infant formulas, patients undergoing intravenous feeding or for preventing or treating malnutrition, inflammation or high cholesterol. The purified PUFAs may also be incorporated into cooking oils, fate, margarines or other food received.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADW20631;
                                                                                                                                                                                                                                                                                                                                                                                                                             New nucleic acids encoding diacylglycerol acyltransferase and phospholipid:diacylglycerol acyltransferases useful for altering polyunsaturated fatty acid content in triacylglycerols in oleaginous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antiinflammatory; hypercholesterolemia; antilipemic; metabolic
oil; food; phospholipid:diacylglycerol acyltransferase; PDAT; c

    Y. lipolytica

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-APR-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-JUL-2004; 2004WO-US021932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO2005003322-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        malnutrition; eating-disorders-gen.; nutritional disorder; inflammation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADW20631
                                                                                                                                                                                                                                                                                                                                                             Example 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-JUL-2003; 2003US-0484599P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-JAN-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yarrowia lipolytica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Odna)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2005-091802/10
DB; ADW20632.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGCCGGACCGCTTCAATCCTCGAGGAGGGCCTCGCACGCCGACCACGTTGACATCTTG 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACGATGATGAGGAGACT 1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrGluAspSerGluSer 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGAACTATGTTGTGAGCÁÁCATCAAAGAATATGCÁTCCÁGGGTTÁÁG-----ATT 1869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Certain PUFAs are recognized as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PONT DE
                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     phospholipid:diacylglycerol acyltransferase (PDAT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product= "Y. lipolytica phospholipid:diacylglycerol
acyltransferase (PDAT) protein"
/EC_number= "EC 2.3.1.158"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
274. .2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----IleAlaAsnMetThrLys---AlaProArgValLysTyrIleThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NEMOURS &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----HisValGluLeuAsnValAspHisGluHisGlySerAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2326
                                                                                                                                                                                                                                                                                                                                                          127pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    য়ে
    essential fatty acids that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ds; gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            និនិនិនិនិនិនិនិ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                               δ
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                              5
                                                                                                                     밁
```

```
Best Local S.
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-651-651-5 (1-546) x ADW20631 (1-2326)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cannot be synthesized de novo in mammals and must be supplied as part of the diet or derived from linoleic acid or alpha-linolenic acid. There are a variety of commercial sources of PUFAs from natural sources. However, there are disadvantages associated with these methods of production ego heterogeneous oil compositions, pollution, availability fluctuation due to the weather and expense. The current sequence is that of the Yarrowia lipolytica phospholipid:diacylglycerol acyltransferase (PDAT) DNA of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      invention.
                                                                                                                        1291
                                                                                                                                                                                                        1231
                                                                                                                                                                                                                                                                                    1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1009
                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                          164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTGTGGGCAAGGCTATGAAGAGCGAGGGACTCAACGCCAAGTACCCCGGTGGTGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGACAAGTACTGCTGGCTGCAGAACCTGATGCTGGACACAGAGACCGGTCTAGACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGCGTCATCTCCACGGGACTGGAGAGCTGGTCCCTGGAGGGAACCGAGGAGTGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIle-----LeuAspCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
ThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu-----
                                        GCTCTTCTGTCTGAGAAATGAAGGATACCGTGCAGCTGAACGCGATGGCTGTATGGA
                                                                                SerThrLeuSerGly----
                                                                                                                        CATATTGAATCCTTTGTCGACATTTCCGGCTCCATGCTGGGTACTCCCAAGACCCTGGTT 1350
                                                                                                                                                              HisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLys
                                                                                                                                                                                                      TTCATGAAGTGGGCTGAGGCCGAGGGATATGGAGGAGGAGGTCCCAACTGGGTCAATGAC
                                                                                                                                                                                                                                          PheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGln
                                                                                                                                                                                                                                                                                  ATGACAGGTGAGAAGACAGTTCTGACGGGCCATTCCATGGGCTCCCCAGGTCATCTTCTAC
                                                                                                                                                                                                                                                                                                                LeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyr
                                                                                                                                                                                                                                                                                                                                                                  TTGGAGCACCGAGACGGATACTTCTCCAAGCTCAAAGCTTCAATCGAAGAGACTAAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                  LeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLys 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATACGATACGGATACAATGTCTGCTGCGGCGTACGACTGGAGACTGTCCTACCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCATTTCAAGCTGCGAGCCGCCCAGGGATTTGCCTCCGCCGACTTCTTTATGGCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGAGTCGCACTTCAGAAAGCGAATGTGGGGGCTCCTGGTACATGATCCGAGTCATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------TGGCTGTGGAACAAGCTGCTCGAGAACCTGGCTGTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.18e-22
325.50
38.14%
24.54%
10.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              560 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ဂ
ဂ
                                                                                -ValThrPheGlyLeuProValSerGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U; 1 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2326
119
66
202
99
    -TrpLeuMetPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s part of
There are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                            203
                                                                                                                                                                                                                                                                                                                                                                    1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46
                                          1410
                                                                                                                                                                  243
                                                                                                                                                                                                        1290
                                                                                                                                                                                                                                                223
                                                                                                                                                                                                                                                                                        1230
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            768
      275
```

CTGGAGCAGTTCTTCTCTCGACGAGAGCGAGCCGATCTGCTGCGAACATGGGGAAGATT 1470

```
RESULT 9
ADP47835
ID ADP4
XX ADP4
XX ADP4
XX ADP4
XX ACC
DT 26-F
DT 26-F
DT Crep
XX acyl
KW accil
KW Bhos
KW accil
KW Bobo
KW Accil
KW Accil
KW Bobo
KW Accil
KW Bob
KW B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                  active membrane independent acyltransferase; fatty acid ester; fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lycolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADF47835
                                                                                                                                                                                                                                                                                                                                                                                                        acyltransferase; enzyme; membrane-spanning
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Crepis palaestina acyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADF47835;
        29-MAY-2002;
                                                             28-MAY-2003;
                                                                                                                   04-DEC-2003
                                                                                                                                                                           WO2003100044-A1
                                                                                                                                                                                                                                Crepis palaestina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G-----CTTACTCCTTTGGAA-----TTGCCAAGACTCGAAAGCAGGTTGAGCAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uValAsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTTCCATGATTCCCAAGGGTGGTAAGGCTATCTGGGGTGATCATTCTGGAGCCCCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAACCGTTGACTTCCTGTATTCTCAGTCTCCCGAGTGGTTTGTGAACCGAACCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACTTCATCAAGTTCAAGGAGTCCTTGACCGAGTACTCTGCTAAGAACCTCACCATGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LysLysAspLysArgValTyrHisCysAspGluGlu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGTCACCGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTr 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCAGTATCGCTGGAAACGACCCTGATGGTGTGTTATGGGTCAG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              elleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValVa 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATACCGAGCGAGCCTACTACTACCAGGATGAGCCCAATCCCGAGCAGACCAACTTGAA 1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGAAGCGACCTTCTACCTGGAGCAACCCTCTGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----ProThrAsnIleIleAsnIleGluIleProSerThrSerValThrGluThrAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    рСувьувавиттр
        2002SE-00001581
                                                             2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GATGACGAGCCCGGCCAGAATGTCACCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCCCGATCTC-AAGATCTACTGCTTCTATGGAGTCGGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---GlyThrLeuPheLysAlaIleGluAspTyrAspProAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCATGGAACCGTCTCCCTTGTGACCCATACCAT 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---GluTyrGlnSerLys-TyrSerGlyTrp---
                                                                                                                                                                                                                                                                                                                                                                                                        region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----CTGCTCTCCCC 1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO:20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         307
```

ş 밁 S В 8 밁 ঠ

103 454

HisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspPro

406

CATGGTCTTTTT-----

83

LeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAsp

TTGGTTGGAGCATTTGTCACTGGACAATGAAACAGGGCTCGAC

513 102 453 82 405

64

TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThr----ThrLysLeu GTTTTAGTCCCCGGAATCGTCACCGGCGCCTTGAGCTTTGGGAAGGCCAACCTTGTTCT

CGTAAACGCCTTTGGGGGTGGTAGCTTTACAGAAATC

346

US-09-651-651-5 (1-546) x ADF47835

44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro 63

(1-2004)

Query Match:

Percent Similarity: Best Local Similarity:

1.36e-19 300.50 33.22% 22.60% 10.13%

Indels:

2004 134 63 239 157

Length: Matches: Conservative: Mismatches:

No.:

Sequence 2004 BP;

567

A;

373

Ç

544 G;

520

Ŧ, 0 ų;

0 Other;

```
CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carbohydrates and acylated amino acids. Also described: (1) a CC nucleotide sequence molecule (II) comprising at least one promoter region CC which functions in a host, where the promoter region is operably linked CC to at least one (I), which is operably linked to at least one non-CC translated region which functions in a host; (2) a vector comprising (II) (2); (3) a host cell comprising (II) or the vector; (4) producing an CC improved active membrane independent acyltransferase polypeptide, CC comprising providing the above host cell and a growth medium preparing a host cell culture, culturing the host cell culture and harvesting the cot cell culture and recovering the improved active membrane independent CC (4), where the polypeptide at least is an improved active membrane independent conditionally the above polypeptide; (6) an oligonucleotide specifically hybridiaing to (I) under stringent conditions; and (7) a kit comprising the above polypeptide and a stabiliser. The nucleic acid comprising the above polypeptide are useful in producing structured condifying lipids present in animal and plant raw material. The present conditions is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original accidence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw material.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-MAY-2002; 2002US-0383889P
20-JAN-2003; 2003SE-00000142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 5; SEQ ID NO 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dahlqvist A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SCAN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2004-053268/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADF47836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ghosal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              91pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lindqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ķ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Banas
```

at

밁

```
1447
                                                                                                                                                                                 1408
                                                                                                                                                                                                                                                                        1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1024
                                                                                                                                                                                                                                                                                                                                                                  1288
1507
                                        398
                                                                                                                                  384
                                                                                                                                                                                                                           364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTACACTTCCTCAAATGGGTGGAAGCCCCTGTTCCGATGGGCGGCGGCGGCGGTCCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATAACCAACGGTAACAAGAAAGTAGTGGTGGTGCCACATTCAATGGGGGGTAATCTACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCCGGGGATTCGGGGTCAGACCAGTTCCGGGTCTTGTTGCAGCTGATTATTTCGCTCCT
                                                                                                                                                                                                                         AlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyr
                                                                                                                                                                                                                                                                           AAACTTGCTGATAACAAAGCGTACACAGCTGGAACGTTAATCGATCTTTTACGGTTTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                             SerMetGluCysGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleIleAsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGAAATACGGAAGAATTAACTCATTCGGAAAGACAGCTTCCGAGCAACATTCCTCAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluTyrGlnSerLysTyrSerGlyTrp-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAACAGAAAACCATGGTAAAAATTAACAACACGAAACCTCAGTTCGTAATGAAACAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGly-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACATGATGCGT---GTAGGTCGAACTTGGGATTCTGTAATCTCATTGCTTCCT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyThrAlaArqLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCGGTGTTCCGAAGACGGTTAGCGGGATGCTGTCGGCGGAAGGCAAAGACGTTGCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlySerValGluAlaIleLysSerThrLeuSerGly------ValThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgTyrPheLeuGluTrpLeuArgLeuGluIle-------AlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LysLeuArgGlyGlyProSerIleValPheAla---HisSerMetGlyAsnAsnValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACACTGAAGTAAGGGATCAAGCACTTAGCAGATTGAAAATCAACATCGAGCTAATGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCGGGTACGAAGGGAAGAACATGTATATGGCTGCTTACGACTGGAGGCTTTCGTTTCAA
CCGTTAGAGACTAAACTACCAGATGCTCCAAACATGGAGATTTTTTTCTTTGTACGGGGTT
                                                                                       CATGGAATAGCGGATGATCTTGATGACCCAAAATATAATCATTACAAATATTGGTCGAAT
                                                                                                                                                                                                                                                                                                                   ---LeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLys
                                                                                                                                                                                                                                                                                                                                                                GGTGCAAATTGCGGTGAGAGTTGGAGCGAGTACGGTAAAATTAGCAAGGAAAGCATTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCACAAATCACGATCTTCAAAAAGATAATTTATTCGAC-----ACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAGAGCCATGGCGCCTGGTTTGATAGATTCAGAAATTCTAGGGCTCCAAACTCTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       - GGGTĠĠTGCĠĀĊĄĄĠĊĀŤĀŤĆĄĄĄĠĊŤĄTCĄTGĄĄCĄTCĠĠĀĠĊĠGCGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                · AAAGGCGGAGACACCATTTGGGGGGGATTTAGATTCCTCCCCTGAAGATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGlu
                                                                                                                                                                                 ---- CCAAAGACGATGAAACGGGCCGAGGCCCATTTCTCA
                                                                                                                                  AspAspProValPheAsnProLeuThrProTrpGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTTGGGCGGTTCTTATCGAGAATCTGGCTAAA
                                        ProlleLysAsnValPheCysIleTyrGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    277
1566
                                                                                       1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1023
                                                                                                                                                                                                                                                                           1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  573
                                                                                                                                                                                                                                                                                                                                                                                                             344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            852
```

멹

중 유

유

 Ś

Ś

음 성 음

8 8 8 8 8 8 8

```
RESULT 10
ADF47
ID ADF47
ID ADF47
XX 26-FE
XX 26-FE
XX 26-FE
XX acylt
KW activ
KW fatty
KW acyls
KW acys
KW ds.
XX 29-MA
PR 20-JA
PR WPI;
NEW n
PT usefu
PT mater
XX PT mater
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw material.
                                                                                                                                                                                                          29-MAY-2002; 2002SE-00001581
29-MAY-2002; 2002US-0383889P
20-JAN-2003; 2003SE-00000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                    acyltransferase; enzyme; membrane-spanning region; active membrane independent acyltransferase; fatty acid ester; fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; yeast; gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADF47817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADF47817
                                                                                                                                                                                                                                                                              28-MAY-2003; 2003WO-SE000870.
                                                                                                                                                                                                                                                                                                                  04-DEC-2003
                                                                                                                                                                                                                                                                                                                                                 WO2003100044-A1
                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yeast membrane independent acyltransferase
                                                                                                                                       Dahlqvist
                                                                                                                                                                         (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1612
                                                                                                      2004-053268/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisGluHisGlySerAspIleIleAlaAspMetThrLysAlaProArgValLysTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTAGGTTTAATCCGTCTGGGAGTGAGACGTATATACGGGGAGTATAAACATAAAGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATGAGACTGTACCGGTTTTGAGTGCGGGGTTTATGTGTGCGAAAGGGTGGAAAGGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValValAspGlyAsnAlaGlyPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACTCTCTACAGAAAGATCGTATGTTTATAGACTGTCACAATCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGCCGGAGCTTCTGGGGGTGGAGATTGGCGGTGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrPheTyrGluAspSerGluSerIleProGlyLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGAGTTTGCTTGAGGGAAGGGGTTTGGAAAGTGGGGCTCATGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluThrValProTyrHisSerLeuSerTrp-----CysLysAsnTrpLeuGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAGCGGAGGGAACGGTGGTCGGGGGAGCTTACGTGGCGGTGTTTATTTTGTTGATGGT
                                                                                                                                       Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                                                   cerevisiae
                                                                                                                                       Ghosal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                                                                       P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProLysValAsnIleThrMetAlaProGlnProGluHisAspGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GATAAATGCAACAGTATTCCGTTTAGAATTGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATATATTGGGGAATGTGGCATTGATTGAGGATGTTTTGAGGGTG
                                                                                                                                       Lindqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽P
                                                                                                                                       ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerAspValHisValGluLeuAsnValAsp
                                                                                                                                         Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA sequence
                                                                                                                                         P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----IleThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                        gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1872
```

Ś

δ

밁

8 B

밁

밁

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present invention describes a nucleotide sequence (I) derived from a conclusive sequence encoding an acyltransferase polypeptide comprising at CC least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one and/or substituted as compared to the original acyltransferase cc polypeptide in which at least one cc polypeptide, where the encoded active membrane independent cc acyltransferase polypeptide can produce fatty acid esters and/or fatty cc acid thioseters such as triacylglycerols, diacylglycerols, acid thioseters such as triacylglycerols, diacylglycerols, acid thioseters such as triacylglycerols, diacylglycerols, acylated carbohydrates and acylated amino acids. Also described: (I) a mucleotide sequence molecule (II) comprising at least one promoter region which functions in a host, where the promoter region is operably linked to at least one (I), which is operably linked to at least one non-cc translated region which functions in a host; (2) a vector comprising (II) (2); (3) a host cell comprising (II) or the vector; (4) producing an cimproved active membrane independent acyltransferase polypeptide, (5) a polypeptide obtained by the method in comprising the above host cell and a growth medium preparing a host cell culture, culturing the host cell and a growth medium preparing a cimproved active membrane independent colling the obtained by the method in classing to (I) under stringent conditions; and (7) a kit comprising the above polypeptide; (6) an oligonucleotide comprising the above polypeptide; (6) an oligonucleotide acid molecule (I) and the polypeptide are useful in producing structured condifying lipids present in animal and plant raw material. The present of condifying lipids present in animal and plant raw material.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Ś
                                             믕
                                                                                    á
                                                                                                                                  밁
                                                                                                                                                                    S
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1701 BP; 516 A; 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 12; SEQ ID
                                                                                                                                                                                                                    448
                                                                                                                                                                                                                                                                  110
                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                                                331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211
    170 TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer 189
                                                                                      150
                                                                                                                                  493
                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                         74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37
                                                                                                                                                                                                                                                                                                                                                    90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54
                                                                                                                                                                                                                                                                                                         TIGAAACAIGTAAIGTIAGAICCIGAAACAGGICIGGACCCACCGAACTIIACGCIACGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp 73
                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuValTrp----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |||||||
|GATTATAATATCGAGGCCAAACATCCTGTTGTAATGGTTCCTGGTGTCATTTCTACGGGA 270
                                                                      IleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeu 169
                                                                                                                                                                                                                      GCAGCACAGGCTTCGAATCAACTGATTATTTCATCGCAGGGTAT-----
                                                                                                                                                                                                                                                                                                                                      PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg 109
                                                                                                                                                                                                                                                                                                                                                                                             CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT---TGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA 330
                                                                                                                                                                           SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla 149
                                                                                                                                                                                                                                                                ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu 129
                                                ATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAGATCTAGAAAGACGCGATAGG 609
                                                                                                                                  ---TGGATTTGGAACAAAGTTTTCCAAAATCTGGGAGTAATTGGCTATGAACCCAATAAA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γr-----SerLγsLeuSerGlyIleIleIleproGlγPheAlaSerThrGln 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NO 2; 91pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.35e-19
299.50
38.51%
23.38%
10.10%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x ADF47817 (1-1701)
                                                                                                                                                                                                                                                                                                                                                                                                                                      ---LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    401 G; 467 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1701
119
77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188
125
24
                                                                                                                                                                                                                                                                                                             447
                                                                                                                                                                                                                                                                                                                                                                                                  387
```

1444 ATGTGTCACAAATGGCCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTACT 1503 484MetalaProGlnProGlu 489
LeuGlyProLysValAsnIleThr 48
454 AsnAlaGlyProlleThrGlyAspGluThrValProTyrHisSerLeuSer 470
434 AspileIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly 453
414 GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr 433
nValPheCysIleTyrGlyAlaHisLeuLysThr ::::: -ATCTATTGTATATACGGGGTGAACAACCCAACT
379 LeuLysLysLeuTyrHisAspAspProValPheAsnProLeuThr 393 ::: ::: 1207 TTAAGAAAAATGAGCTACCACCACCAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA 1266
359 GlyThrLeuPheLy8AlaIleGluAspTyrAspProAspSerLy8ArgMetLeuHisGln 378
339 ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp 358
324 GluIleProSerThrSerValThrGluThrAlaLeuValAsnMet 338
304 CysAspGluGluGyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle 323
284 ABNThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis 303
272TrpLeuMetProPheSerLysAsnCysLysGlyAsp 283
257 GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu
lyLeuProValSer 2
ao N
210 LeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla 227 ::: ::: ::: 730 GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGGTTAACGAACACATAGATTCA 789
190 IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg 209
610 TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAAGTT 669

밁

S

맑 δ 당 Ś 밁 δ 밁 á 밁 8 밁 S 밁 Ś 밁 á 밁 Ś 음 성 음 성 음 성 음

```
RESULT 11
AAC64431
                                                                                                                                                      Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                           Alignment
Pred. No.:
                                                                                                                                                                                                                                                                     밁
                                                                                               á
                                     Ś
                                                                    밁
              밁
                                                                                                                           US-09-651-651-5
                                                                                                                                                                                                                                                                                           The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence encodes yeast (Saccharomyces cerevisiae) PDAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to increase oil content.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae PDAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAC64431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC64431
                                                                                                                                                                                                                                                                    Sequence 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 6; Page 45-48; 97pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dahlqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-MAR-2000; 2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAB24256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BADI ) BASF PLANT SCI GMBH.
                                                                                                                                                                                                                             No . :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             phospholipid:diacylglycerol acyltransferase; triacylglycerol;
expressed sequence tag; fatty acid; oil content; ds.
                                                                                                                                                                                                                                          Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000-665012/64.
                                      54 LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTGTGGAAATGAAACACCAGCCAGAT 1530
                                                                                      AspTyr-----SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGln
             ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٧,
                                                                                                                           (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99EP-00106656.
99EP-00111321.
2000US-0180687P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Stahl
                                                                                                                                                                                                                                                                     615
                                                                                                                           x AAC64431 (1-1986)
                                                                                                                                                                    1.7e-19
299.50
38.51%
23.38%
10.10%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                     Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lenman
                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                                                                                                                                                                                     ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Z
                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                      Gaps:
                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Banas
                                                                                                                                                                                                                                                                     G.
                                                                                                                                                                                                                                                                     532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NO:1
                                                                                                                                                                                                                                                                     <del>,</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ronne
                                                                                                                                                                                                                                                                       0
                                                                                                                                                       1986
119
77
188
125
24
                                                                                                                                                                                                                                                                     U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                         밁
                                               Ş
                                                                                   밁
                                                                                                            δ
                                                                                                                                        밁
                                                                                                                                                                   á
                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 1186
                                                                                    1444
                                                                                                                                           1411
                                                                                                                                                                                                    1351
                                                                                                                                                                                                                                                         1315
                                                                                                                                                                                                                                                                                                                  1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         616
                                                                                                                                                                      339
                                                                                                                                                                                                                                                                                                                                                                                                     272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       110
 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValTrp-----LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp
                                                  LeuLysLys-----LeuTyrHis-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuGlu-----IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTTACTTTATGAAATGGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGÀAACATGTAATGTTAGATCCTGAAACAGGTCTGGACCCACCGAACTTTACGCTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT---TGTTGG
ProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThr
                                                                                                                                                                                                  GAAAGGAATACGAGCGATGCTTTCAACAAAATTTGACAATGAAAGACGCCATTAACATG
                                                                                                                                                                                                                                                           AACAACACTGACACATAC
                                                                                                                                                                                                                                                                                                                                            AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĠĠTGAAATGAAAGATACCATTCAATTAAATACGTTAGCCATGTATĠĠŤŤŤĠ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTCATTAATGCAGCAGGGACGCTTCTGGGGCGCTCCAAAGGCAGTTCCAGCTCTAATTAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGGTTAACGAACACATAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeu 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---TGGATTTĠĠAACAAAGTTTTCCAAAATCTGGGAGTAATTĠĠĊTATĠAACCCAATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAGCACAGGCTTCGAATCAACTGATTATTTCATCGCAGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg
                             TTAAGAAAAATGAGCTACACCACAAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA 1551
                                                                                    -----AGAGTACATGAGCAGTACTCGTTCGGCTATTCCAAGAATGAAGAAGAG
                                                                                                             GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln
                                                                                                                                                                      ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                              GluIleProSerThr------SerValThrGluThrAlaLeuValAsnMet
                                                                                                                                                                                                                                                                                    CysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAspIleIleAsnIle
                                                                                                                                                                                                                                                                                                                  GAGGTCATTTGG----
                                                                                                                                                                                                                                                                                                                                                                         TTACAAACGTGGGGTGGTATACCATCAATGCTACCA-
                                                                                                                                                                                                                                                                                                                                                                                                                                   -----CAAAAAGTTCTTCTCAAGAATTGAGAGAGTAAAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACGAGTGCTGCGTÁTGÁTTGGÁGGCTTGCATATTTAGATCTÁGAÁAGACGCGÁTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ValThrPheGlyLeuProValSer
                                                                                                                                                                                                                                                                                                                                                                                                     ----LeuMetProPheSerLysAsnCysLysGlyAsp
                                                                                                                                                                                                                                                                                                                  -GGGGATATGAAGTCATCTTCAGAGGATGCATTGAAT
                                                                                                                                             TTATCGATATCACCTGAATGGCTCCAAAGA
                                                      -AspAspProValPheAsnProLeuThr
                                                                                                                                                                                                                                                            ----GGCAATTTCATTCGATTT
                                                                                                                                                                                                                                                                                                                                                                            AAGGGAGAA
                                                                                                                                                                                                                                                            1350
                                                                                                                                                                                                                                                                                                                                                                                                                                   1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109
                                                                                                                                                                                                                                                                                                                                                                            1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            672
                                                                                                                                              1443
                                                                                                                                                                         358
                                                                                                                                                                                                                                 338
                                                                                                                                                                                                                                                                                                                                               303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       834
  413
                                                         393
                                                                                       1491
                                                                                                                  378
                                                                                                                                                                                                     1410
                                                                                                                                                                                                                                                                                        323
                                                                                                                                                                                                                                                                                                                     1314
                                                                                                                                                                                                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                             271
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism. The present sequence represents the yeast (Saccharomyces cerevisiae) PDAT ORF (open reading frame) nucleotide
                                                                                                                                                          Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to increase oil content.
                                                                                                                                                                                                                                                                                                           01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                             Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                  PDAT; phospholipid:diacylglycerol acyltransferase; EST; expressed sequence tag; fatty acid; oil conter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAC64440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAC64440
                                                                                                                                                                                                                                                                                                                                                                  12-OCT-2000
                                                                                                                                      Claim 6; Page 71-74; 97pp; English
                                                                                                                                                                                                                                                    Dahlqvist A,
                                                                                                                                                                                                                                                                                                07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                           28-MAR-2000;
                                                                                                                                                                                                                                                                          (BADI )
                                                                                                                                                                                                                    -PSDB; AAB24265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               454
                                                                                                                                                                                                                              2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         484
                                                                                                                                                                                                                                                                          BASF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnAlaGlyProIle-----ThrGlyAspGluThrValProTyrHisSerLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTGTCACAAATGGGCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TrpCysLysAsnTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCAAGCAACCTGTATTCCTCACCGAGGGGACGGAACCGTTCCGCTCGTGGCGCATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAAGGCATAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTGTGGAAATGAAACACCAGCCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----MetAlaProGlnProGlu
                                                                                                                                                                                                                                                                                                                                             2000WO-EP002701
                                                                                                                                                                                                                                                                                               2000US-0180687P
                                                                                                                                                                                                                                                                          PLANT SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cerevisiae PDAT ORF
                                                                                                                                                                                                                                                     Stahl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GTATATAAGGAAGAGGATGACTCCTCTGCTCTGAATTTGACCATCGACTACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GAAGCTCCCCACATGAAA---ATCTATTGTATATACGGGGTGAACACCCAACT
                                                                                                                                                                                                                                                                                                           99EP-00106656
99EP-00111321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA;
                                                                                                                                                                                                                                                    Ġ
                                                                                                                                                                                                                                                                          GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1986
                                                                                                                                                                                                                                                     Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                   fatty acid; oil content;
                                                                                                                                                                                                                                                    ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleotide sequence
                                                                                                                                                                                                                                                     Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----LeuGlyProLys---ValAsnIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         489
                                                                                                                                                                                                                                                    P
                                                                                                                                                                                                                                                      Ronne
                                                                                                                                                                                                                                                                                                                                                                                                                                              triacylglycerol;
                                                                                                                                                                                                                                                      Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO:4a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             453
                             of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SXS
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                        δ
                                                 밁
                                                                Ş
                                                                                       밁
                                                                                                              Ś
                                                                                                                                         밁
                                                                                                                                                        δ
                                                                                                                                                                                   문
                                                                                                                                                                                                        5
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
```

```
Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                1186
                                                                                                                                                                                                                            1075
                                                                                                                                                                                                                                                                                           1015
                                                                                                                                                                                            248
                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                      895
                                                                                                                                                                                                                                                                                                                                                                                                                                                     170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74 LeuValTrp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54 LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlu-----IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla
                                                                                                                                                                                                                                                                                                                                                                                                                    TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAGATCTAGAAAGACGCGATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGAAACATGTAAGTTAGATCCTGAAACAGGTCTGGACCCACCGAACTTTACGCTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT----TGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspTyr-----SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGln
                                                                                                                                                                                                                          TTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGGCAGTTCCAGCTCTAATTAGT
                                                                                                                                                                                                                                                      TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSer
                                                                                                                                                                                                                                                                                                                                                       TGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTATCTTTATGAAATGGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                      IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAGCACAGGCTTCGAATCAACTGATTATTTCATCGCAGGGTAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA
                                                                                                                                                                                              Gly----
                                                                                                                                                                                                                                                                                        GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGGTTAACGAACACATAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---TGGATTTGGAACAAAGTTTTCCAAAATCTGGGAGTAATTGGCTATGAACCCAATAAA
AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis 303
                                  TTACAAACGTĞĞGGTGGTATACCATCAATGCTACCA
                                                                                                                             GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu----
                                                                                                                                                               GGTGAAATGAAAGATACCATTCAATTAAATACGTTAGCCATGTATGGTTTG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.7e-1.299.50
299.50
38.51%
23.38%
10.10%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x AAC64440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .7e-19
99.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                  ----LeuMetProPheSerLysAsnCysLysGlyAsp 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                   GAAAAGTTCTTCTCAAGAATTGAGAGAGTAAAAATG 122:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                            ---------ValThrPheGlyLeuProValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ţ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1986
119
77
188
125
24
                                       AAGGGAGAA
                                                                                                                                                                                                                                                                                                                                                            1014
                                                                                                                                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                              1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              555
                                       1266
                                                                                                                                                                    1185
                                                                                                                                                                                                                                 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            53
                                                                                                                                                                                                 256
                                                                                                                                                                                                                                                                                                                                                                                                                          954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         894
                                                                                                                                    271
                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    777
```

GAGGTCATTTGG----

GGGGATATGAAGTCATCTTCAGAGGATGCATTGAAT 1314

```
ARSOUT 13
AASO1342
ID 0ASO1
XX AASO1
AC AASO1
AC AASO1
XX 31-MA
XX 31-MA
XX Lecit
KW Lecit
KW acyl
KW acyl
KW nutri
KW yeast
XX Yeast
XX Yeast
XX Yeast
XX Yeast
XX Wozoch
XX OOS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT ACY
XX WOZOO
XX ACY
PD 08-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                     Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase; location oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; yeast; Arabidopsis thaliana; LCAT related open reading frame 1; LRO1; ds
                                                                                                                                                                                                                                                                                                                               31-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                            AAS01342 standard;
                                                                                                                                                                                      Saccharomyces
                                                                                                                                                                                                                                                                                                                                                              AAS01342;
                30-AUG-2000; 2000WO-US023863
                                               08-MAR-2001.
                                                                            WO200116308-
                                                                                                                                                                                                                                                                                                  Yeast LCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLysLys-----LeuTyrHis------AspAspProValPheAsnProLeuThr 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAAGGAATACGAGCGATGCTTTCAACAAAAATTTGACAATGAAAGACGCCATTAACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TrpCysLysAsnTrp----------LeuGlyProLys---ValAsnIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspileIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAAGGGCATAT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GAAGCTCCCCACATGAAA---ATCTATTGTATATACGGGGTGAACAACCCAACT 1602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThr 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AGAGTACATGAGCAGTÁCTCGTTCGGCTATTCCAAGAATGAAGAAGAG 149:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGTGGAAATGAAACACCAGCCAGAT 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAAGCAACCTGTATTCCTCACCGAGGGGGACGGAACCGTTCCGCTCGTGGCGCATTCA 1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnAlaGlyProlle-----ThrGlyAspGluThrValProTyrHisSerLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTAAGAAAAATGAGCTACACCACAAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTGTCACAAATGGGCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTÁCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GTATATAAGGAAGAGGATGACTCCTCTGCTCTGAATTTGACCATCGACTACGAA 1668
                                                                                                                                                                                                                                                                                                  related
                                                                              -A2
                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                                                                                        cerevisiae
                                                                                                                                                       Location/Qualifiers
                                                                                                           product= "LRO1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -MetAlaProGlnProGlu 489
                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                                open reading frame
                                                                                                                                          .1986
                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                               1986
                                                                                                                                                                                                                                                                                                                                                                                             ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----TTATCGATATCACCTGAATGGCTCCAAAGA 1443
                                                                                                                                                                                                                                                                                                  1 (LRO1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -SerValThrGluThrAlaLeuValAsnMet
                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   470
```

```
CC (LROI) is described in an invention relating to several novel
CC (LROI) is described in an invention relating to several novel
CC (polynucleotides encoding the plant sterol acyltransferases LCAT
CC (lecithin:cholesterol acyltransferase-like; AASO01081-AASO1104, AASO1341)
CC and ACAT (acyl CoA:cholesterol acyltransferase-like; AASO1311-AASO1319).
CC and ACAT like cDNA sequence (AASO1105) is also described. The
CC polypucleotides encoding LCAT or ACAT are used to produce LCAT or ACAT
CC polypetides. They can also be used in a recombinant construct to
CC construct is used to increase or decrease the sterol content of the host
CC construct is used to increase or decrease the sterol content of the host
CC cell or plant. It can be used to alter oil production of the cell or
CC plant, preferably by increasing it. The oil of the plant or the plant
CC supplements, or in pharmaceutical compositions for lowering cholesterol.
CC The oil can be used in foods e.g. margarine, butter, cooking oil, and
CC dressings e.g. salad dressings, mayonnaise, cheese, processed meat,
CC cookies, snack bars, confections, chocolates, and beverages. The
CC alteration in sterol content and/or composition can also provide a plant
CC with tolerance to stress and insect damage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase like polypeptides, for modifying the sterol content and oil production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 5; Page 116-117; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lassner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MONS ) MONSANTO CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  present sequence encoding for yeast LCAT related open reading frame,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001-169010/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAU00464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0152493P
```

US-09-651-651-5 (1-546) x AAS01342 (1-1986)

Gaps: Mismatches: Indels:

Percent Similarity:
Best Local Similarity:
Query Match:
DB:

1.7e-19 299.50 38.51% 23.38% 10.10%

Length: Matches: Conservative:

1986 119 77 188 125 24

No.:

Sequence 1986

BP; 615 A; 361

Ç

478 G;

532 Ή, 0

U; 0 Other;

```
밁
                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                           밁
                                                                                                             Ś
                                                                                                                                                      밁
                                                                                                                                                                                      á
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                              556
                                                                                                                                                                                                                                                                                                                                                                                            496
                                                                                                                                                        673
                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                     54
                                                                                                                                                                                                                                                                                                                                                                                                                                37
                                    SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla
                                                                                                                                                                                                                                                                      LeuValTrp-----LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp
                                                                                                                                                                                                                                                                                                                ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA 615
                                                                                                                                                                                                                                                                                                                                                   LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                            GATTATAATATCGAGGCCAAACATCCTGTTGTAATGGTTCCTGGTGTCATTTCTACGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                        AspTyr-----SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGln
---TGGATTTGGAACAAAGTTTTCCAAAATCTGGGAGTAATTGGCTATGAACCCAATAAA 834
                                                                                                                                                                                           PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg
                                                                                                               ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu
                                                                                                                                                        TTGAAACATGTAATGTTAGATCCTGAAACAGGTCTGGACCCACCGAACTTTACGCTACGT
                                                                                                                                                                                                                                   CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT---TGTTGG
                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                    53
                                                                                                                     129
                                                                                                                                                                                                                                       672
                                                                               777
```

δ

S

á

밁

정 음 정 음

밁

```
1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1135
                                                                                                                                                                                                                                 1603
                                                                                                                                                                                                                                                                                                                           1552
                                                                                                                                                                                                                                                                                                                                                                                                                        1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1015
                                                                                                                                        1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         248
  471
                                                                                                                                                                                   434
                                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuGlu-----IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACAACACTGACACATAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTACAAACGTGGGGTGGTATACCATCAATGCTACCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGGCAGTTCCAGCTCTAATTAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGGTTAACGAACACATAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAGATCTAGAAAGACGCGATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAAGGAATACGAGCGATGCTTTCAACAAAAATTTGÁĆÁATGAAAGACGCCATTÁACÁTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluIleProSerThr------SerValThrGluThrAlaLeuValAsnMet 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGAAATGAAAGATACCATTCAATTAAATACGTTAGCCATGTATGGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTTACTTTATGAAATGGGTCGAG 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAGTT
  TrpCysLysAsnTrp
                                                                                                                                                                                 AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly
                                                                                                                                                                                                                                                                           GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr
                                                                                                                                                                                                                                                                                                                                                        ProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThr
                                                                                                                                                                                                                                                                                                                                                                                                                        TTAAGAAAAATGAGCTACACCACAAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA 155:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLysLys-----LeuTyrHis-----AspAspProValPheAsnProLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis 303
                                                                                         AsnAlaGlyProlle-----ThrGlyAspGluThrValProTyrHisSerLeuSer
                                                                                                                                        -----GTATATAAGGAAGAGGATGACTCCTCTGCTCTGAATTTGACCATCGACTACGAA 166
                                                                                                                                                                                                                                                                                                                           -GAAGCTCCCCACATGAAA---ATCTATTGTATATACGGGGTGAACAACCCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 - AGAGTACATGAGCAGTACTCGTTCGGCTATTCCAAGAATGAAGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GAAAAGTTCTTCTCAAGAATTGAGAGAGTAAAAATG 122:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----LeuMetProPheSerLysAsnCysLysGlyAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGGATATGAAGTCATCTTCAGAGGATGCATTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTATCGATATCACCTGAATGGCTCCAAAGA
-LeuGlyProLys---ValAsnIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ValThrPheGlyLeuProValSer 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GGCÄÄTTTCÄTTCGATTT 1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AAGGGAGAA 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      894
                                                1728
                                                                                              470
                                                                                                                                                                                                                                    1614
                                                                                                                                                                                                                                                                                                                              1602
                                                                                                                                                                                                                                                                                                                                                                            413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  227
  483
                                                                                                                                                                                      453
```

S 밁 δ 밁 δ 밁 5 B 5 밁 S 밁 Ş 밁 S 밁 S В S 밁 Ş 밁 5 В

정 음 정 음

```
ADF47816

ADF47816

ADF47816

AC ADF47

XX YEAR

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                       CC nucleotide sequence encoding an acyltransferase polypoptide comprising at commembrane independent acyltransferase polypoptide in which at least one membrane independent acyltransferase polypoptide in which at least one commembrane independent acyltransferase polypoptide in which at least one commembrane independent acyltransferase polypoptide in which at least one compared to the original acyltransferase compared to acyltransferase polypoptide can produce fatty acid esters and/or fatty card thioesters such as triacylglycerols, diacylglycerols, waxesters, componently glycerols, phospholipids, glycolipids, lysolipids, waxesters, componently glycerols, which is operably linked to at least one non-componently glycerols, which is operably linked to at least one non-componently glycerols, which is operably linked to at least one non-componently glycerols, glyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       active membrane independent acyltransferase; fatty acid ester; fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; plycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; yeast; gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New nucleotide sequence encoding an improved acyltransferase polypeptide useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 5; SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dahlqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-MAY-2002;
29-MAY-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-MAY-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-DEC-2003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO2003100044-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yeast acyltransferase nucleotide sequence SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADF47816;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADF47816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-JAN-2003;
independent acyltransferase polypeptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     present invention describes a nucleotide sequence (I) derived from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2004-053268/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTGTCACAAATGGGCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTGTGGAAATGAAACACCAGCCAGAT 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard; DNA; 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Þ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002SE-00001581
2002US-0383889P
2003SE-00000142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ghosal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             enzyme; membrane-spanning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetAlaProGlnProGlu 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lindqvist Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    English
           6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             region;
       an oligonucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ID NO:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
a
t
```

358

1410

1350

338

303 1266

1314

323

413 1551 393 1491 378

1602

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ន្តន្តន្តន្តន្ត្
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                       밁
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                            밁
                                                                         Ś
                                                                                                                                   S
                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
              S
                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        specifically hybridising to (I) under stringent conditions; and (7) a loomprising the above polypeptide and a stabiliser. The nucleic acid molecule (I) and the polypeptide are useful in producing structured lipids or fat-soluble molecules, in removing undestrable fat or in modifying lipids present in animal and plant raw material. The present sequence is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1986 BP; 615 A; 361 C; 478 G; 532 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No::
                                             1186
                                                                                                          1135
                                                                                                                                                                        1075
                                                                                                                                                                                                                                   1015
                272
                                                                           257
                                                                                                                                        248
                                                                                                                                                                                                                                                                                                  955
                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                              895
                                                                                                                                                                                                                                                                                                                                                                                            170
                                                                                                                                                                                                                                                                                                                                                                                                                             835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          496
                                                                                                                                                                                                                                                                                                                                                                                                                                                          150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATTATAATATCGAGGCCAAACATCCTGTTGTAATGGTTCCTGGTGTCATTTCTACGGGA 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuValTrp------LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp
                                                                                                                                                                        TTCATTAATGCAGCAGGACGCTTCTGGGCGCTCCAAAGGCAGTTCCAGCTCTAATTAGT
                                                                                                                                                                                                      TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSer
                                                                                                                                                                                                                                   GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGGTTAACGAACACATAGATTCA
                                                                                                                                                                                                                                                                 LeuGlu-----IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla
                                                                                                                                                                                                                                                                                                                               IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                             TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                           ATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAGATCTAGAAAGACGCGATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---TGGATTTGGAACAAAGTTTTCCAAAATCTGGGAGTAATTGGCTATGAACCCAATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAGCACAGGCTTCGAATCAACTGATTATTTCATCGCAGGGTAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGAAACATGTAATGTTAGATCCTGAAACAGGTCTGGACCCACCGAACTTTACGCTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT---TGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspTyr-----SerLysLeuSerGlyIleIleFroGlyPheAlaSerThrGln
                                                                           GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu-----
                                                                                                          GGTGAAATGAAAGATACCATTCAATTAAATACGTTAGCCATGTATGGTTTG------
                                                                                                                                                                                                                                                                                                  TGTTTAATTGGACÁTTCTÁTGGGTTCTCAGATTATCTTTÁCTTTATGAAATGGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.7e-19
299.50
38.51%
23.38%
10.10%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x ADF47816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-1986)
                                               -GAAAAGTTCTTCTCAAGAATTGAGAGAGTAAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
LeuMetProPheSerLysAsnCysLysGlyAsp
                                                                                                                                         -ValThrPheGlyLeuProValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1986
119
77
188
125
24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            kit
                                               1221
                                                                                                                                                                                                                                       1074
                                                                                                                                                                                                                                                                                                   1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              615
                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                               RESULT 1:
ADT87255
ID ADTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
 PR XXX
 15-APR-2003; 2003EP-00008080.
02-MAY-2003; 2003EP-00039728.
                                                                                                                                                                                                                                                                                                                    ADT87255 standard;
                                                                                                                                                                        Yeast; Stress-related protein; abiotic stress; drought; heat;
                                                                                                                                                                                                                                                                                     ADT87255;
                                                                                                                                           Saccharomyces cerevisiae
                                                                                                                                                                                                                      Yeast Stress-related protein gene YNR008W
                                               15-APR-2004; 2004WO-US011888
                                                                                                            WO2004092398-A2
                                                                                                                                                                                                                                                     13-JAN-2005
                                                                                                                                                                                                                                                                                                                                                15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1351
                                                                                                                                                                                                                                                                                                                                                                                  1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1222 TTACAAACGTGGGGTGGTATACCATCAATGCTACCA------AGGGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             379
                                                                                                                                                                                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAAGGAATACGAGCGATGCTTTCAACAAAATTTGACAATGAAAGACGCCATTAACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis
                                                                                                                                                                                                                                                                                                                                                                                  ATTGTGGAAATGAAACACCAGCCAGAT 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TrpCysLysAsnTrp----------LeuGlyProLys---ValAsnIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GAAGCTCCCCACATGAAA---ATCTATTGTATATACGGGGTGAACAACCCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAAGAAAAATGAGĆTACACCACAAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuLysLys-----LeuTyrHis-----AspAspProValPheAsnProLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluIleProSerThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTGTCACAAATGGGCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCAAGCAACCTGTATTCCTCACCGAGGGGGACGGAACCGTTCCGCTCGTGGCGCATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnAlaGlyProlle-----ThrGlyAspGluThrValProTyrHisSerLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GTATATAAGGAAGAGGATGACTCCTCTGCTCTGAATTTGACCATCGACTACGAA 1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAAGGGCATAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----AGAGTACATGAGCAGTACTCGTTCGGCTATTCCAAGAATGAAGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                -MetAlaProGlnProGlu 489
                                                                                                                                                                                                                                                                                                                    DNA;
                                                                                                                                                                                                                                                     entry)
                                                                                                                                                                                                                                                                                                                    1986
                                                                                                                                                                                                                                                                                                                    ВP
                                                                                                                                                                            SRP; ds; gene; cold; salt.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGATATGAAGTCATCTTCAGAGGATGCATTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -TTATCGATATCACCTGAATGGCTCCAAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerValThrGluThrAlaLeuValAsnMet
                                                                                                                                                                                          environmental
```

etress;

1788

483

1728

470

453 1614

```
Compared to a corresponding non-transformed wild type plant cell (where the metabolic activity is altered by transformation with a SRP coding CC nucleic acid and results in increased tolerance and/or resistance to an CC environmental stress as compared to a corresponding non-transformed wild type plant cell), a transgenic plant generated from the plant cell above (and which is a monocot or dicot plant, or a gymnosperm plant), a seed produced by a transgenic plant above (where the seed is genetically CC noncrygous for a transgene conferring altered metabolic activity construct which confers the expression of the nucleic acid molecule above (comprising one or more regulatory elements, where expression of the SRP CC construct which has been transformed wild type plant), a vector comprising the nucleic acid molecule above or the nucleic acid molecule above or cell results in altered metabolic activity cresulting in increased tolerance to environmental stress as compared to a corresponding non-transformed wild type host cell), a vector comprising the nucleic acid molecule above or the nucleic acid construct, a host cell which has been transformed stably or transiently with the vector (or the nucleic acid molecules above, or the nucleic acid construct), an construct which has been transformed stably or transiently with the vector (or the nucleic acid construct) and compared to a corresponding non-transformed stably or transiently with the vector (or the nucleic acid construct) and compared to a corresponding non-transformed stably or transiently with the vector (or method of producing a transgenic plant with altered metabolic activity or modifying stress tolerance of a plant, detecting environmental stress in plant cells or plants, screening plant, detecting environmental stress in the altered metabolic activity and/or resistance to environmental cells or plant transformed with the nucleic acids above and a seed of the plant. The bonds are plant cells as markers for selection of plants or plant cells
S
                                             US-09-651-651-5 (1-546)
                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New isolated nucleic acid molecule comprises a sequence encoding Stress-Related Protein (SRP), useful for producing transformed plants with altered metabolic activity resulting in increased tolerance or resistance
                                                                                                                                Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-AUG-2003;
30-SEP-2003;
                                                                                                                                                                                                                                                                                                   homologues are useful as markers for selection of plants or plant cells with increased tolerance to environmental stress, or for detection of stress in plants or plant cells. The nucleic acids are useful for producing transformed plants with altered metabolic activity resulting increased tolerance and/or resistance to an environmental stress (drought, heat, cold and salt) as compared to a corresponding nontransformed will-type plant cell. The present sequence is a yeast gene encoding an SRP of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2004-766883/75.
                                                                                                                                                                                                                                                                 Sequence 1986 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (BADI ) BASF PLANT SCI GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention relates an isolated nucleic acid molecule comprises a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ic acid molecule encoding a Stress-Related Protein (SRP), from Yo
coli and their homologues from Rice, Soybean and Rape. Also
ded are a transformed plant cell with altered metabolic activity
    37
  AspTyr-----SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 233; 911pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chardonnens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2003EP-00016672
2003EP-00022225
                                                                                                                                                                                                                                                                 615 A; 361
                                                                                         1.7e-19
299.50
38.51%
23.38%
10.10%
                                             ×
                                                ADT87255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shirley A,
                                                                                                                                                                                                                                                                   Ü
                                             (1-1986)
                                                                                                                                                                                                                                                                   478
                                                                                                                                                                         Length:
Matches:
                                                                                                                Indels:
                                                                                                                                Mismatches:
                                                                                                                                                         Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wang
                                                                                                                                                                                                                                                                   532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ×
                                                                                                                                                                                                                                                                   Η,
                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sarria-Millan
                                                                                                                                                                                                                                                                   ς;
                                                                                                                                                     1986
119
77
                                                                                         188
125
24
                                                                                                                                                                                                                                                                     0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from Yeast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                       밁
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1015
                                                                                                                                                                                                                                                                                                                                        1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            778 ---TGGATTTGGAACAAAGTTTTCCAAAATCTGGGAGTAATTGGCTATGAACCCAATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 733 GCAGCACAGGGCTTCGAATCAACTGATTATTTCATCGCAGGGTAT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110 ProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             616 CGGCTGTGGGGAAGTTTTTACATGCTGAGAACAATGGTTATGGATAAAGTT---TGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    556 ATTGAAAGCTGGGGAGTTATTGGAGACGATGAGTGCGATAGTTCTGCGCATTTTCGTAAA 615
                         359 GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54 LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74 LeuValTrp---
                                                                                                                                                         AACAACACTGACACATAC----
                                                                                                                                                                                                                                                                                        CysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle 323
                                                                                                                                                                                                                                                                                                                                        GAGGTCATTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGGTTGGGTTAACGAACACATAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGlu-----IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTTACTTTATGAAATGGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATCAATTGAGTGGTGAAAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAGATCTAGAAAGACGCGATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeu 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGAAACATGTAATGTTAGATCCTGAAACAGGTCTGGACCCACCGAACTTTACGCTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArg
                                                                                                           ThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp 358
                                                                                                                                                                                                       GluIleProSerThr-----
                                                                                                                                                                                                                                                                                                                                                                          AsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis 303
                                                                                                                                                                                                                                                                                                                                                                                                                             TTACAAACGTGGGGTGGTATACCATCAATGCTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGAAATGAAAGATACCATTCAATTAAATACGTTAGCCATGTATGGTTTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGGCAGTTCCAGCTCTAATTAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----LeuMetProPheSerLysAsnCysLysGlyAsp 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GAAAAGTTCTTCTCAAGAATTGAGAGAGTAAAAATG 1221
                                                                                                                                                                                                                                                                                                                                        GGGGATATGAAGTCATCTTCAGAGGATGCATTGAAT 131
                                                                                                                                                                                                       -SerValThrGluThrAlaLeuValAsnMet 338
                                                                         TTATCGATATCACCTGAATGGCTCCAAAGA 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---ValThrPheGlYLeuProValSer 256
                                                                                                                                                                                                                                                     -GGCAATTTCATTCGATTT 1350
```

227 1014 209

189

894

1074

149

129

732

109 672 89

834

1266

1185

271

	Search completed: November 22, 2005, 11:10:37 Job time : 679 secs	arch comple b time : 67	Jol
	1789 ATTGTGGAAATGAAACACCAGCCAGAT 1815	1789	망
	MetAlaProGlnProGlu 489	484	ð
1788	ATGTGTCACAAATGGGCCCAGGGTGCTTCACCGTACAACCCTGCCGGAATTAACGTTACT	1729	뮹
483	TrpCysLysAsnTrpLeuGlyProLysValAsnIleThr	471	Ś
1728	AGCAAGCAACCTGTATTCCTCACCGAGGGGACGGAACCGTTCCGCTCGTGGCGCATTCA	1669	멍
470	AsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSer 470	454	ફ
1668	GTATATAAGGAAGAGGATGACTCCTCTGCTCTGAATTTGACCATCGACTACGAA 1668	1615	B
453	AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGly 453	434	Ś
1614	GAAAGGCATAT	1603	뫄
433	GluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThr 433	414	á
1602		1552	망
413	ProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThr	394	ঠ
1551	TTAAGAAAAAATGAGCTACACCACAAGCACTGGTCGAATCCAATGGAAGTACCACTTCCA 1551	1492	밁
393	LeuLygLygLeuTyrHigAspAspProValPheAsnProLeuThr	379	Ş
1491	AGAGTACATGAGCAGTACTCGTTCGGCTATTCCAAGAATGAAGAAGAG 1491	1444	B

```
-MODEL=frame+_p2n.model -DEV=xlh
-Q=/cgn2_1/USPTO_spool/US09651651/runat_18112005_101831_20277/app_query.fasta_1.711
-DB=Issued_Patents NA -QFWT=fastap -SUFFIX=rni -MINMATCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS=Dits -START=1 -END=-1 -MATRIX+blosum62 -TRANS=human40.cdi
-LIST=45 -DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15
-MODE=LOCAL -OUTFMT=pto -NORM=sxt -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US09651651_@CGN_1_1_143_@runat_18112005_101831_20277 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQÜERY -NEG_SCORES=0 -MAXIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -MARN_TIMEOUT=30 -THREADS=1 -NCAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-PGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein -
                                                                                                                                                                                                                                 Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing:
                                                                                                                                                                                                               ö
  Score
                                                                                                                                                                                                                                                                                                               re greater than or equal to the score of the result being is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                           Issued_Patents_NA:*

1: /cgn2_6/ptodata/1/ina/1_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PTUS_COMB.seq:*

6: /cgn2_6/ptodata/1/ina/PTUS_COMB.seq:*

7: /cgn2_6/ptodata/1/ina/PCOMB.seq:*

8: /cgn2_6/ptodata/1/ina/PCOMB.seq:*

9: /cgn2_6/ptodata/1/ina/BCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xgapop 10.0 , X
Ygapop 10.0 , X
Fgapop 6.0 , I
Delop 6.0 , I
                                                                                                                                                                                                                                                                                                                                  is the number of results predicted by chance to have a ster than or equal to the score of the result being printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5
2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    November 22,
                                                                                                                                                                                                               Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1303057 segs, 888780828 residues
                                                                                                                                                                                                                                   Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum Match 0%
                         10.9
7.9
7.6
7.6
7.6
7.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MGANSKSVTASFTVIAVFFL.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                               Length
    1236
1354
1744
1744
1744
1137
1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2005, 10:51:45; Search time 208 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                               BB
US-09-248-796A-1147

US-09-402-532-14

US-09-402-532-19

US-09-949-016-3703

US-09-949-016-3703

US-09-054-272-33

US-09-19-497-30

US-09-402-532-15

US-09-402-532-15
                                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (without alignments)
4666.099 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .DSESIPGKRTAVWELDKSGY 546
Sequence 1147, Ap
Sequence 14, Appl
Sequence 19, Appl
Sequence 3703, Ap
Sequence 30, Appl
Sequence 30, Appl
Sequence 12, Appl
Sequence 15, Appl
Sequence 17, Appl
                                                                                                                                                                                                             Description
```

ALIGNMENTS

RESULT 1 US-09-248-796A-1147

```
Percent Similarity:
Best Local Similarity:
                                                                                  Score:
                                                                                                                           Alignment Scores:
                  Query Match:
                                                                                                         Pred. No.:
                                                                                                                                                                      US-09-248-796A-1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Keith Weinstock et al
APPLICANT: Keith Weinstock et al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO CANDIDA ALBICÁ
TITLE OF INVENTION: FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.132
CURRENT APPLICATION NUMBER: US/09/248,796A
CURRENT FILING DATE: 1999-02-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1147, Application US/09248796A Patent No. 6747137
                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS:
SEQ ID NO 1147
                                                                                                                                                                                      TYPE: DNA
ORGANISM: Candida albicans
FEATURE:
NAME/KEY: unsure
LOCATION: (341)
OTHER INFORMATION: Identity
                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: US 60/074,725
PRIOR FILING DATE: 1998-02-13
PRIOR APPLICATION NUMBER: US 60/096,409
PRIOR FILING DATE: 1998-08-13
                                                                                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                           2106
                                                                                                                                                                                           Identity of nucleotide sequences at the above locations are unknown
7.91e-28
324.00
38.29%
24.00%
10.93%
                                    Length:
Matches:
Conservative:
Mismatches:
                      Indels:
```

411

1659 398 1617

```
US-09-651-651-5 (1-546) x US-09-248-796A-1147 (1-2106)
                                                                                                                                                                                                                                                                                                                                                      1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1018
                                                                                                                                                                                                             301
178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28 ValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu------AspCysProTyr 64
                                                                                                                                                                                                                                                                                                                                                         GTCGATATGTTGAGATCATTTGGTGGTATTGCCAGTATGATACCT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTGAAATTGTCAAACAATTGACAGGTAAAAAATCAGTATTAGTGGGCCATTCAATGGGT 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThr 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAAACTTAGCTGTGATTGGTTATGGACCCAATAATATGATTAGTGCCTCGTATGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrp 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTACTGGATTAGATCCTCCTAATATTAAAGTTAGAGCAGCTCAAGGGTTTGAAGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATAAAACT-----TGTTGGCTTAGACATATCATGTTAGATACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTGGTCATTTCCGGAAAAGATTATGGGGGATCATTTTATATGTTAAGAACTATGGTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrProLeu-----------AspPheAsnProLeuAspLeuValTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGGTGATTTCTACTGGGTTAGAATCTTGGGGGACCACCACTACGGGGGATTGTCCATCA 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGAAAATCTGAAAAATTTCACAGCTGACCATAATGTA-----GTTATGGTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                ArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCys 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACAAATTATTTATTTTTTTTTTTTGAAATGG-----GTTGAAGCCAAAGGAGAATATTAT 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGly 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATTTTTTCATGGCGGGGTAT------TGGATTTGGAATAAAATTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspPro
                                                                                                                                                               Val---TyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsn
                                                                                                                                                                                                                                                            AAAGGTGGTGACAAAATATGGGGGAATTTGACT-----TATGCTCCTGATGATGAAAATA 1410
                                                                                                                                                                                                                                                                                                     LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTACAATTAAATGCCTTAGCGGTGTATGGATTAGAGCAATTTTTCAGTAGACGTGAAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTTCTTTGGGTACACCAAAGGCTATCCCAGCATTAATTTCTGGTGAAATGAAAGATACA 1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProLeuLeuGlySerValGluAlaIleLysSerThrLeuSerGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTAACGGAGGACCTAATTGGGTCGAAGATTACGTTGAAGCATTTGTTAATATTAGTGGA 1191
                                                                                                                IleIleAsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ValThrPheGlyLeuPro-----ValSerGluGlyThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------LeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAla
                                                                      -GGATCATTTATTCAATACAAAACTGCCAATGACTCT 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            248
                                                             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 2
US-09-402-532-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
  US-09-651-651-5 (1-546) x US-09-402-532-14 (1-1137)
                                                                                                                                           Score:
                                                                                                                                                                                                                                        US-09-402-532-14
                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Taniyama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION
FILE REFERENCE: 2456USOP
                                                                                                                                                                                                                                                                                                     SEQ ID NO 14
LENGTH: 1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 14, Application US/09402532 Patent No. 6498019
                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/402,532
CURRENT FILING DATE: 1999-10-04
EARLIER APPLICATION NUMBER: PCT/JP98/01643
EARLIER FILING DATE: 1998-04-09
EARLIER APPLICATION NUMBER: JP 10-010289
EARLIER FILING DATE: 1998-01-22
EARLIER FILING DATE: 1998-01-22
EARLIER FILING DATE: 1997-07-10
                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER APPLICATION NUMBER: JP 9-093355 EARLIER FILING DATE: 1997-04-11
                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID
                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Murine
                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1498 TCTAGAGAAGTAACTATTGACCAAAGTATTGAAGAATTATTAGAAAATTCTCCAGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1975 GAAĆÁĆGTTGATATT 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       496 ---HisValGluLeu 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetAlaPro---GlnProGluHisAspGlySerAspVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValVal 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTACTGAAAGGGCTTATAAATACATGCCTGCTGATAAGTCAACAAAACTTGATTATGTA 1779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIle 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGGCAGCATTACCAAATGCTCCAAGTTTGAAAGTTTATTGTTTTTTATGGTGTTGGTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAAAAGAATAATCATGATCAA-------CTGAAATGGTCTAATCCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeu 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTGTTGAAATTAAACATGAACCCGATAGATTTGATTTAAGAGGTGGAGCTAAAACTGCT 1974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTCATGAATGGCAAAAAGGTGATAAATCAAGATACAATCCTGCTAATGTCAATGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysLysAsnTrp---LeuGlyProLys-------ValAsnIleThr 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGT-----GATGGGGÄTGGGACAGTTTCATTGTTAACCCATACAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATTCCAAAAGAGTGCGTGAAAATTATTCGTTTGGCGTTGCTCACACAAAGGAAGAATTG
                                                                  1.59e-17
234.00
35.81%
22.70%
7.89%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----ProlleLysAsnValPheCysIleTyrGlyAlaHisLeu
                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GATGCTGATTCTCCTGATGGTGTTGTTCTT 1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AND USE
                                                1137
116
67
154
175
```

495 1914 1854 471

á

á 밁 Ś 밁 ঠ 밁 δ 밁 Ş 밁 Ś 밁 ş 밁

á 밁 Ş 밁 Ś

밁

Ş 밁 δ 밁 á 밁 5 밁 á 밁 ঠ 8

중 음 중

뭐

ð B **ð**

8 8 8 8 8 8 8

음 성

B 8 B 8 B 8 B 8 B 8 B 8

음 성

Ş	B &	US-09-6	Alignment Pred. No.: Score: Percent S: Best Local Query Mato DB:	RESULT 3 US-09-402-5 Sequence Patent NG GENERAL I APPLICAN TITLE OF FILE REF FILE REF CURRENT CURRENT CURRENT CURRELIER EARLIER EARLIER EARLIER EARLIER EARLIER EARLIER EARLIER EARLIER EARLIER OFFMARE SEQ ID NG SUSTWARE SEQ ID NG LENGTH TYPE: I ORGANIS US-09-402-5	DЪ	Q E	β Q	σb	9	Db Qy	B 65	рь	δ	da	Q (B &	
64ByrThrProLeuAspPheAsnProLeuAspLeu 74	44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro 63 :::::::	51-651-5 (1-546)	No.: 1.83e-17 Length: 1236	SULT 3 -09-402-532-19 Sequence 19, Application US/09402532 Sequence 19, Application US/09402532 Patent No. 6498019 GENERAL INFORMATION: APPLICANT: Taniyama, Yoshio TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION AND USE FILE REFERENCE: 2456USOP CURRENT ELLING DATE: 1999-10-04 EARLIER APPLICATION NUMBER: US/09/402,532 CURRENT FILING DATE: 1999-04-09 EARLIER FILING DATE: 1998-04-09 EARLIER FILING DATE: 1998-01-22 EARLIER APPLICATION UNMBER: JP 10-010289 EARLIER APPLICATION UNMBER: JP 9-18485 EARLIER APPLICATION UNMBER: JP 9-18485 EARLIER APPLICATION UNMBER: JP 9-093355 EARLIER FILING DATE: 1997-07-10 EARLIER FILING DATE: 1997-04-11 NUMBER OF SEQ ID NOS: 43 SOFTWARE: SEQ ID NO 19 LENGTH: 1236 TYPE: DNA ORGANISM: Murine	95 TGCCACCACCTTGGCTTATCTGAAACGTGTG 11	512 nMetThrLysAlaProArgValLysTyrIle 522	492 ySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAs 512 	GCAGAGCCGCCAAGAG	75 pLeuGly	455 aGlyProlleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTr 475	435 elleTyrGluThrdluGlySerLeuValSerArgserGlyInrvalvalAspolyAsuari 433	1 CTCTTTCTACTAC	AlaProSerGl	61	95 pGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluVa 4	380 sLysLeuTyrHisAspAspProValPheAsnProLeuThrProTr 395 	

D Q D D D

중 유

á

8 8 8 8 8

Pred. No.: Score: Score: Percent Si Best Local Query Matc	RESULT 4 US-09-94s Sequence Patent FAPPLICE TITLE TITLE TITLE TITLE TOURREN CURREN CURREN FRIOR PRIOR	p Q	S d	D Q	Db Qy	Qy Db	DB QY) } }
. No.: 1.94e-16 Length: 1354 e: 236.00 Matches: 14 Local Similarity: 24.31% Mismatches: 153 y Match: 3.62% Mismatches: 148 Gaps: 25 9-651-651-5 (1-546) x US-09-949-016-3703 (1-1354) 44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAla	US-09-949-016-3703 US-09-949-016-3703 Sequence 3703, Application US/09949016 Patent No. 6812339 GENERAL INFORMATION: APPLICANT: VENTER, J. Craig et al. TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF FILE REFERENCE: CLOO1307 CURRENT APPLICATION UMBER: US/09/949,016 CURRENT APPLICATION NUMBER: 60/241,755 PRIOR APPLICATION NUMBER: 60/241,755 PRIOR APPLICATION NUMBER: 60/237,768 PRIOR APPLICATION NUMBER: 60/237,768 PRIOR FILING DATE: 2000-10-03 PRIOR APPLICATION NUMBER: 60/231,498 PRIOR FILING DATE: 2000-09-08 NUMBER OF SEQ ID NOS: 207012 SOFTWARE: FastSEQ for Windows Version 4.0 USCHAMISM: Human CORGANIZM: Human CORGANIZM: Human	512 nMetThrLysAlaProArgValLysTyrIle 522	492 ySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAs 512	475 pLeuGlyProLyBValAsnIleThrMetAlaProGlnProGluHisAspGl 492	455 aGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTr 475	435 eIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAapGlyAanAl 455	115 1617/7/17/FERBALGEFOSEKG17/ASEKG17/FERBAGERILEPTITETIETIETIETIETIETIETIETIETIETIETIETIE	

```
1068
                                                                                                                                                           1011 GAAGTATACTGTCTTTACGGCGTGGGCCTGCCCACGCCCCGCACCTACATCTAC---GAC 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              222
442
                                                                                                                                                                                                                                                                    981
                                                                                                                                                                                                                                                                                                                      382
                                                                                                                                                                                                                                                                                                                                                                       924
                                                                                                                                                                                                                                                                                                                                                                                                                            362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPhe 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgVal 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAla 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PheGly---IleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCAAGCTGGCAGGGTACCTGCACACACTG------GTGCAGAACCTGGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---ATCGATAACACCAGGGTTGTCTACAACCGGAGCTCTGGGCTCGTGTCCAACGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValLeuAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMet 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACCGCTTTATTGATGGCTTCATCTCTTGGGGGTCCCTGGGGTGGCTCCATCAAGCCC 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAla 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCTATTTCCTG-----CTGCGCCAGCCCCAGGCC-----TGGAAG 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeu 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCAGCAGGÁGÁG------TÁCTACCGCÁÁGCTCGCAGGGCTGGTGGÁGGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATGGCTACGTGCGGGACGAGACTGTGCGCGCCCCCCTATGACTGGCGGCTGGAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTGTCCAGATCCCCGTCCCTGGCTTTGGCAAGACCTACTCTGTGGAGTACCTGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluCysLysSerArg---ProAspSerGlyLeuSer---AlaIleThrGluLeuAspPro
                                                                                     SerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGluGly 441
                                                                                                                                                                                                 AsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaPro 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeu 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCACCACCTCCCCTGGATGTTTCCCTCTCGCATGGCG---TGGCCTGAGGACCACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIle 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLys 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGCTGGTCTTGGCCTCAGGTGACAACCAGGGCATCCCCATC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACGCTGCCTATGGGAAGCCTGTCTTCCTCATTGGCCACAGCCTCGGCTGTCTACACTTG
SerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGlyAsp 461
                                                    CACGGCTTCCCCTACACGGACCCT-----GTGGGTGTGCTCTATGAG-----
                                                                                                                                                                                                                                                                    TTCTTTGCAGACCTGCACTTTGAG----GAAGGCTGGTACATGTGGCTGCAGTCACGTGAC 980
                                                                                                                                                                                                                                                                                                                                                                                                                      PheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLys 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArg
                                                                                                                                                                                                                                                                                                                LeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIleLys 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GACTTCAACTACACAGGCCGT------GACTTCCAACGC 923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---ATGTCCAGCATCAAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --ProTyrAsnGln----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------ 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----ThrAspHisPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
```

밁

청 유

Ś

8 8 8 8 8 8 8 8 8 8 8 8 8

US-09-651-651-5 (1-546) x US-09-054-272-33 (1-1744)

8 8 8 8 8 8

밁

성 음 성

8 8 8 8 8 8 8 8

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-054-272-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                            Alignment Scores:
                                                               Score:
                                                                                                                             US-09-054-272-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 33, Applicate Patent No. 6692909 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Daley, George Q.
APPLICANT: Cargill, Michele
APPLICANT: Ireland, James S.
APPLICANT: Rozen, Steven G.
TITLE OF INVENTION: CODING SEQUENC
TITLE OF INVENTION: IN VASCULAR PA
NUMBER OF SEQUENCES: 59
                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WHITELECOMMUNICATION INFORMATION:
TELEPHONE: 781-861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: Window
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 01-APR-CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: HAMILTON, BROOK,
                                                                              .
No.:
                                                                                                                                                                                                       TOPOLOGY: 1:
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: 1 -- CTTY: Lexington
                                                                                                                                                          NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                     TELEFAX: 781-861-9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                           OTHER INFORMATION:
                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1173 ------CCACAGCCTGTGCAC 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1119 GACACGGTGGCGACCCGCAGCACCGAGCTCTGTGGCCTGTGGCAGGGCCGCCAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1110 --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      462 GluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsn 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JRMATION:

Lander, Eric S.

Lander, George Q.

Cargill, Michele
T: Cargill, Michele
T: Ireland, James S.

TRUENTION: CODING SEQUENCE POLYMORPHISMS
TRUENTION: TANGENTY VASCULAR PATHOLOGY GENES
                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleThrMetAlaProGlnProGluHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/09054272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Two Militia Drive
                                                                                                                                                                                                                                                                       1744 base
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                          linear
                                                                                                                                                             Coding Sequence 268...1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UMBER: US/09/054,272
01-APR-1998
                                                                                                                                                                                                                                       single
                                                                                                                                                                                                           Genomic DNA
             2.99e-16
226.00
35.82%
24.31%
7.62%
                                                                                                                                                                                                                                                                       pairs
                                                                                                                                                                                                                                                                                                                                                                                         WHI98-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMITH & REYNOLDS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Version
                                                              Length:
Matches:
                Mismatches:
Indels:
                                                Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490
1744
114
54
153
148
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GATGGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1172
```

Ş

유수유

유

유정

& B

```
302 TyrHisCysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsmIleIle 321
1075 ACCACCTCCCCCTGGATGTTTCCCTCTCGCATGGCG---TGGCCTGAGGACCACGTG 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1057
1180 TTCTTTGCAGACCTGCACTTTGAG---GAAGGCTGGTACATGTGGCTGCAGTCACGTGAC 1236
                                                                                                                                                                                                                                                                 1132 TTCATTTCCACACCCAGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1039 ------ 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362 PheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLys 381
                                                                                                                                                                                           342 GluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeu
                                                                                                                                                                                                                                                                                                                            322 AsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMet 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             282 GlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgVal 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   262 LeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLys 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242 IleLygSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArg 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 222 AspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAla 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202 ArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeu 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841 CACGCTGCCTATGGGAAGCCTGTCTTCCTCATTGGCCACAGCCTCGGCTGTCTACACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182 LeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      790 GGCCAGCAGGAGGAG-----TACTACCGCAAGCTCGCAGGGCTGGTGGAGGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      162 ThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAla 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          730 ANTGGCTACGTGCGGGACGAGACTGTGCGCGCCCCCTATGACTGGCGGCTGGAGCCC 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          143 PheGly---IleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerPro 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              682 AGCAAGCTGGCAGGGTACCTGGCACACACTG------GTGCAGAACCTGGTCAAC 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123 GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      105 GluCysLysSerArg---ProAspSerGlyLeuSer---AlaIleThrGluLeuAspPro 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               565 ---ATCGATAACACCAGGGTTGTCTACAACCGGAGCTCTGGGCTCGTGTCCAACGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   517 ATCTGGCTGGATCTCAACATGTTCCTACCCCTTGGGGTAGACTGCTGG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    475 GTGAACTGGATG-----TGCTACCGCAAGACAGAGGACTTC-----TTCACC 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901 CTCTATTTCCTG-----CTGCGCCCAGCCCCAGGCC-----TGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75 ValTrpLeuAspThrThrLysLeuLeuSer---AlaValAsnCysTrpPheLysCysMet 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94 ValLeuAsp------ProTyrAsnGln-----ThrAspHisPro 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGCTGGTCTTGGCCTCAGGTGACCAGCGCATCCCCCATC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTGTCCAGATCCCGCGTCCCTGGCTTTGGCAAGACCTACTCTGTGGAGTACCTGGACAGC 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----TrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeu 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCGCTTTATTGATGGCTTCATCTCTTGGGGCTCCCTGGGGTGGCTCCATCAAGCCC 996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----AAAGAGGAGCAGCGCATA 1074
                                                                                                                                                                                                                                                                 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201
```

5 5 5 5

ঠ

밁

유 성 유

ОУ	Qy bb	p Qy	Qу	Дb	US-09-6	Alignment Pred. No.: Score: Percent Si Best Local Query Matt DB:	Qy 38 Qy 40 Qy 41 Qy 42 Qy 44 Db 133 Qy 46 Db 133 Qy 47 DB 133 Qy 48 DB 133 DB 133 Qy 48 DB 133 D
105 GluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspPro 122	94 ValleuAspProTyrAsnGlnThrAspHisPro 104	laValAsnCysTrpPheLysCysMet 9	57TrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeu 74	44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAla	51-651-5 (1-546) x US-09-919-497-30 (1-1744)	ment Scores: 2.99e-16	382 LeuTyrHisAspAspProValPheAsnProLeuThrPoTrpGluArgProProJ1eLy8 401 1237 CTCCTGGCAGGACTCCCACCA

밁 Ś 밁 S 밁 S

₽ र्

```
1132
1375
                                                                                                                                                                                                                                                                                            1267
                                                                                                                                                                                                                                                                                                                                                                                          1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                462
                                                                                                                                            442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgVal 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCACCACCTCCCCTGGATGTTTCCCTCTCGCATGGCG---TGGCCTGAGGACCACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCGCTTTATTGATGGCTTCATCTCTCTTGGGGCTCCCTGGGGTGGCTCCATCAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheGly---IleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIle 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCTATTTCCTG-----TGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACGCTGCCTATGGGAAGCCTGTCTTCCTCATTGGCCACAGCCTCGGCTGTCTACACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCAGCAGGAGGAG-----TACTACCGCAAGCTCGCAGGGCTGGTGGAGGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATGCTACGTGCGGGACGAGACTGTGCGCGCCCCCTATGACTGGCGGCTGGAGCCC
                                                                                                                                                                                                                              SerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGluGly 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCTTTGCAGACCTGCACTTTGAG---GAAGGCTGGTACATGTGGCTGCAGTCACGTGAC 1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeu 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCATTTCCACACCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnIleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMet 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCTGGTCTTGGCCTCAGGTGACAACCAGGGCATCCCCATC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCAAGCTGGCAGGGTACCTGCACACACTG------GTGCAGAACCTGGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu
GACACGGTGGCGACCCGCAGCACCGAGCTCTGTGGCCTGTGGCAGGGCCGCCAG-----
                                           GluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsn
                                                                                                                                          SerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGlyAsp 461
                                                                                                                                                                                             CACGGCTTCCCCTACACGGACCCT-----GTGGGTGTGCTCTATGAG-
                                                                                                                                                                                                                                                                                            GAAGTATACTGTCTTTACGGCGTGGGCCTGCCCACGCCCCGCACCTACATCTAC---GAC 132:
                                                                                                                                                                                                                                                                                                                                       AsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaPro 421
                                                                                                                                                                                                                                                                                                                                                                                          CTCCTGGCAGGACTCCCAGCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProProIleLys 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLys 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----TTCAACTACACAGGCCGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ATGTCCAGCATCAAGCTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - AAAGAGGAGCAGCGCATA
                                                                                                 -----GATGGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GACTTCCAACGC 1179
                                                                                                                                                                                                                                                                                                                                                                                             -ccreerere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142
                                                                                                 1374
                                                                                                                                                                                                                                                                                                                                                                                          1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        789
                                                   481
```

ঠ

밁 ð 밁 δ 밁 ঠ 밁 á 밁 S 밁 Ş 밁 δ 밁 5 8

185

S 밁 á В र् 밁 S 밁 ঠ

밁

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 7
US-09-402-532-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                    밁
                                                                    Ś
                                                                                                          밁
                                                                                                                                     δ
                                                                                                                                                                               밁
                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Human
US-09-402-532-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/402,532
CURRENT FILING DATE: 1999-10-04
EARLIER APPLICATION NUMBER: PCT/JP98/01643
EARLIER APPLICATION NUMBER: PCT/JP98/01643
EARLIER FILING DATE: 1998-04-09
EARLIER APPLICATION NUMBER: JP 10-010289
EARLIER APPLICATION NUMBER: JP 9-184885
EARLIER APPLICATION NUMBER: JP 9-184885
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER APPLICATION NUMBER: JP 9-093355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-651-651-5 (1-546) x US-09-402-532-12 (1-1137)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 12, Appl
Patent No. 649801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 2456USOP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Taniyama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENGTH: 1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1429 --
                                                                                                            354
                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                            113
                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               482 IleThrMetAlaProGlnProGluHis
                                      405
                                                                        165
                                                                                                                                                                                                                                                         244
                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                             78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44
gGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLe 205
                                                                                                                                         eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165
                                                                                                                                                                                                                                                       GTCCCTGGCTTTGGGAAGACCTTCTCACTGGAGTTCCTGGACCCCAGCAAAAAGCAGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                        AACCTGGAACTGCTGCTGCTGTCATCATTGACTGCTGGATTGACAATATCAGGCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrThrProLeuAspPhe----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGCTGGTCCCTGGTGATTTGGGTAACCAACTGGAAGCC----AAGCTGGACAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro
                                                                    uGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuAr 185
                                                                                                                                                                                                                 Gly-ProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGly---Il 145
                                                                                                                                                                                                                                                                                                                                GTTTACAACAAACATCC-----AGGGCCACCCAGTTTCCTGATGGTGTGGATGTACGT
                                                                                                                                                                                                                                                                                                                                                                ProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSer------
                                                                                                                                                                                                                                                                                                                                                                                                                                       AspThrThrLysLeuLeuSerAla---ValAsnCysTrpPheLysCysMetValLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---ACAGTGGTGCACTACCTCTGCTCCAAGAAGACCGAAAGCTACTTCACAATCTGGCTG
                                    TGAAAACGGGCCCTACTTCCTGGCCCTCCGCGAGATGATCGAGGAGATGTACCAGCTGTA 464
                                                                                                          ACGGGGTGAGGATGTCCGAGGGGCTCCCTATGACTGGCGCCGAGCCCCA------AA 404
                                                                                                                                                                                   GGTTCCTATTTCCACACCATGGTG-GAGAGCCTT
                                                                                                                                                                                                                                                                                          -----GlyLeuSer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6.54e-16
220.50
34.90%
23.14%
7.44%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACAGCCTGTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/09402532
                                                                                                                                                                                                                                                                                            ----AlaIleThrGluLeuAspProGlyTyrIleThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AsnProLeuAspLeuValTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1137
118
60
160
173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USE
                                                                                                                                                                                       GTGGGCTGGGGCTACAC 353
```

243

112 189

126

96

63

77 75

132

밁 Ş

밁 Ś 밁 á

δ

Ś 밁 á В

용

```
RESULT 8
US-09-402-532-15
                                                                                                                                     1071
                                                                                                                                                                                                                1017
                                                                                                                                                                         493
                                                                                                                                                                                                                                                                                           972
                                                                                                                                                                                                                                                                                                                               453
                                                                                                                                                                                                                                                                                                                                                                     928
                                                                                                                                                                                                                                                                                                                                                                                                          433
                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  344 yLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGTCAGCTGTCTCCAGCTGGCTGCCCTAC-----AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   eHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHisAspGlySe
                                                                                                                                                                                                                                                                                                                             γAsnAlaGlyProIleThrGlγAspGluThrValProTyrHisSerLeuSerTrpCγsLy 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----CCTGAGAAGGTGTTCGTGCAGACACCCACAATCAACTACACA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCTTCAGGAGACAACAACCGGATCCCAGTCATCGGGCCCCTGAAGATCCGGGAGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rLeuSerGlyValThrPheGlyLeuProVal---SerGluGlyThrAlaArgLeuLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGGCCTTCGTGTCACTGGGTGCGCCCTGGGGGGGGGTGGCCAAGACCCTGCGCGTCCT
                                                          CACCACCCTGGCCTATCTGAAACGTGTG
                                                                                             tThrLysAlaProArgValLysTyrIle 522
                                                                                                                                                                                                                GGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG--
                                                                                                                                                                                                                                                                                                                                                                                                        rAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAAGCCACGATGCCACCTGGCGTGCAGCTGCACTGCCTCTATGGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACATCGGCTTTGAAGATGGCTGGCTCATGCGGCAGGACACA-----GAAGGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BAsp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGl 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTACACATGGTCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCy
                                                                                                                                   CGAG---CACATCGAGATG-----
                                                                                                                                                                         rAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMe
                                                                                                                                                                                                                                                                                             TGAC-----
                                                                                                                                                                                                                                                                                                                                                                       ----TACTATGAG-----AGCTTCCCTGACCGTGACCCTAAAATCTGCTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GGCGATGGTACTGTGAACTTGAAGAGTGCCCTGCAGTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----ACTGGCGTCCCCACACCAGACTCCTTC-----
                                                          1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----AspProValPheAsnProLeuTh
                                                                                                                                                                                                                ---CAGGAGCTGCCAGGCAG
                                                                                                                                       --CTGGCCAACGC 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 344
                                                                                                                                                                                                                1070
                                                                                                                                                                                                                                                                                             1016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               560
                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                            453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          524
                                                                                                                                                                                                                                                                                                                                                                       971
                                                                                                                                                                                                                                                                                                                                                                                                                                                  927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Sequence 15, Application US/09402532
; Patent No. 6498019
; GENNERAL INFORMATION:
APPLICANT: TENIYama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION AND
FILE REFERENCE: 2456USOP
CURRENT APPLICATION NUMBER: US/09/402,532
; CURRENT FILING DATE: 1999-10-04
EARLIER APPLICATION NUMBER: PCT/JP98/01643
; EARLIER FILING DATE: 1998-04-09
EARLIER APPLICATION NUMBER: JP 10-010289
; EARLIER APPLICATION NUMBER: JP 9-184885
; EARLIER FILING DATE: 1998-01-2
; EARLIER APPLICATION NUMBER: JP 9-184885
; EARLIER APPLICATION NUMBER: JP 9-093355
; EARLIER FILING DATE: 1997-04-11
; NUMBER OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                            δ
                                                                          밁
                                                                                                               δ
                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         吊
                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-651-651-5 (1-546) x US-09-402-532-15 (1-1146)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-402-532-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 15
LENGTH: 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Human
                                                                                                                                                                                                                                      363
                                                                                                                                                                                                                                                                                                                                                   127
                                                                                                                                                                                                                                                                                                                                                                                                                                113
    534
                                                                                474
                                                                                                                                                           414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                165
                                                                                                                                                                                                                                                                                                                                                                                          253 GTCCCTGGCTTTGGGAAGACCTTCTCACTGGAGTTCCTGGACCCCAGCAAAAAGCAGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 142 AACCTGGAACTGCTGCTGTCATCATTGACTGCTGGATTGACAATATCAGGCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64 TyrThrProLeuAspPhe-------AsnProLeuAspLeuValTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro
                                  uGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIl
                                                                                                                                                                                                                                                                                                                                         Gly-ProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGly---I1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGCTGGTCCCTGGTGATTTGGGTAACCAACTGGAAGCC----AAGCTGGACAAGCCG
    GCAG---
                                                                                                                                                                                              uGluArgAapLeuTyrPheHiaLyaLeuLyaLeuThrPheGluThrAlaLeuLyaLeuAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTTACAACAAAACATCC-----AGGGCCACCCAGTTTCCTGATGGTGTGGATGTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---ACAGTGGTGCACTACCTCTGCTCCAAGAAGACCGAAAGCTACTTCACAATCTGGCTG
                                                                                                                                                           TGAAAACGGGCCCTACTTCCTGGCCCTCCGCGAGATGATCGAGGAGATGTACCAGCTGTA 473
                                                                                                                                                                                                                                                                  eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSer------
                                                                              TGGGGGCCCCGTGGTGCTGGTTGCCCACAGTATGGGCAACATGTACACGCTCTACTTTCT
                                                                                                       gGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLe
                                                                                                                                                                                                                                    ACGGGGTGAGGATGTCCGAGGGGGCTCCCTATGACTGGCGCGCGAGCCCCA-----AA 413
                                                                                                                                                                                                                                                                                                               GGTTCCTATTTCCACACCATGGTG-GAGAGCCTT------GTGGGCTGGGGCTACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                -----GlyLeuSer-----AlaIleThrGluLeuAspProGlyTyrIleThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspThrThrLysLeuLeuSerAla---ValAsnCysTrpPheLysCysMetValLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6.63e-16
220.50
34.90%
23.14%
7.44%
  -----CGGCAGCCGCAGGCCTGGAAGGACAAGTATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1146
118
60
160
173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USE
```

밁 Ş

밁 á

밁 ş 밁 δ

225

569

533

205

145

362

185

126

312

112 198 96 141 77

252

84

δ 밁 ર્ 망 Ś 밁 Ś

В

S 밁 Ś 밁 Ş 밁

```
RESULT 9
US-09-402-532-17
US-09-402-532-17
; Sequence 17, Application US/09402532
; Patent No. 6498019
; GENERAL INFORMATION:
APPLICANT: Taniyama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN,
FILE REFERENCE: 2456USOP
                                                                                                                                                                       1107
                                                                                                                                                                                                                                              1080
                                                                                                                                                                                                                                                                                                                         1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     264
                                                                                                                                                                                                                                                                                   493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              741
                                                                                                                                                                                                        513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              864
                                                                                                                                                                                                                                                                                                                                                            473
                                                                                                                                                                                                                                                                                                                                                                                               981
                                                                                                                                                                                                                                                                                                                                                                                                                                     453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGTCAGCTGTCTCCACCAGCTGGCTGCCCTAC------AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGGCCTTCGTGTCACTGGGTGCGCCCTTGGGGGGGGCGTGGCCAAGACCCTGCGCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     eHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerTh
                                                                                                                                                                       CACCACCCTGGCCTATCTGAAACGTGTG
                                                                                                                                                                                                    tThrLysAlaProArgValLysTyrIle
                                                                                                                                                                                                                                                                                                                         GGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG--
                                                                                                                                                                                                                                                                                                                                                                                                                           yAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLy 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAAGCCACGATGCCÁCCTGGCGTGCAGCTGCCTCTÁTGGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACATCGGCTTTGAAGATGGCTGGCTCATGCGGCAGGACACA-----GAAGGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sAsp-----AspProValPheAsnProLeuTh 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -CTGCGGGACTAC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHi 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---- CCTGAGAAGGTGTTCGTGCAGACACCACAATCAACTACACA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCy 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTTCAGGAGACAACCGGATCCCAGTCATCGGGCCCCTGAAGATCCGGGAGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rLeuSerGlyValThrPheGlyLeuProVal---SerGluGlyThrAlaArgLeuLeuSe
                                                                                                                                                                                                                                              CGAG---CACATCGAGATG----
                                                                                                                                                                                                                                                                                   rAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMe 513
                                                                                                                                                                                                                                                                                                                                                          sAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHisAspGlySe 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            {f y}LeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGl{f y}ThrLeuPheL{f y}sAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----TACTATGAG-----AGCTTCCCTGACCGTGACCCTAAAATCTGCTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleTh 433
                                                                                                                                                                                                                                                                                                                                                                                                 GGCGATGGTACTGTGAACTTGAAGAGTGCCCTGCAGTGCCA 1025
                     ITS PRODUCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ACTGGCGTCCCCACACCAGACTCCTTC-----
                                                                                                                                                                                                            522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AND

    CAGGÁGCTGCCAGGCÁG

                     USE
                                                                                                                                                                                                                                                  -CTGGCCAACGC 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413
                                                                                                                                                                                                                                                                                                                         1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/402,532
CURRENT FILING DATE: 1999-10-04
EARLIER APPLICATION NUMBER: PCT/JP98/01643
EARLIER APPLICATION NUMBER: DP 10-010289
EARLIER FILING DATE: 1998-01-22
EARLIER FILING DATE: 1998-01-22
EARLIER APPLICATION NUMBER: JP 9-184885
EARLIER APPLICATION NUMBER: JP 9-184885
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER APPLICATION NUMBER: JP 9-093355
   S
                                       밁
                                                                        S
                                                                                                                밁
                                                                                                                                         Ş
                                                                                                                                                                                       밁
                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-651-651-5 (1-546) x US-09-402-532-17 (1-1236)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-402-532-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1236
TYPE: DNA
ORGANISM: Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                     504
                                                                                                                                                                                                                                                                                                         165
                                                                                                                                                                                                                                                                                                                                              453
                                                                                                                                                                                                                                                                                                                                                                                                                       403
                                                                                                                                                                                                                                                                                                                                                                                                                                                           127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 GTGCTGGTCCCTGGTGATTTGGGTAACCAACTGGAAGCC-----AAGCTGGACAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                  145
     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64 TyrThrProLeuAspPhe-------AsnProLeuAspLeuValTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro
                                                                                                                                                 uGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIl
                                                                                                                                                                                                                                                                                                     uGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuAr 185
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gly-ProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGly---Il
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCCCTGGCTTTGGGAAGACCTTCTCACTGGAGTTCCTGGACCCCAGCAAAAGCAGCGTG 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GlyLeuSer-----AlaIleThrGluLeuAspProGlyTyrIleThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTTACAACAAAACATCC-----AGGGCCACCCAGTTTCCTGATGGTGTGGATGTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspThrThrLysLeuLeuSerAla---ValAsnCysTrpPheLysCysMetValLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---ACAGTGGTGCACTACCTCTGCTCCAAGAAGACCGAAAGCTACTTCACAATCTGGCTG
                                                                                                                                                                                                                              gGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLe
                                                                                                                                                                                                                                                                     TGAAAACGGGCCCTACTTCCTGGCCCTCCGCGAGATGATCGAGGAGATGTACCAGCTGTA
                                                                                                                                                                                                                                                                                                                                                                      eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl 165
                                                                                                                                                                                                                                                                                                                                                                                                                         ĠĠŢŢĊĊŢĄŢŢŢĊĊĄĊĄĊĊĊŢĠĠŢĠ-ĠĄĠĄĠĊĊŢŢ-----ĠŢĠĠĠĊŢĠĠĠĠĊŢĄĊĄĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSer------
                                                                                                                                                                                         TGGGGGCCCCGTGGTGGTTGCCCACAGTATGGGCAACATGTACACGCTCTACTTTCT
                                                                                                                                                                                                                                                                                                                                              ACGGGGTGAGGATGTCCGAGGGGCTCCCTATGACTGGCGCGGAGCCCCA------AA
   rLeuSerGlyValThrPheGlyLeuProVal---SerGluGlyThrAlaArgLeuLeuSe 264
                                         CCGGGCCTTCGTGTCACTGGGTGCGCCCTGGGGGGGGGCCAAGACCCCTGCGCGTCCT
                                                                            eHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.55e-16
220.50
34.90%
23.14%
7.44%
                                                                                                                    Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1236
118
60
160
173
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                                                                                                                                                                                           452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77
                                                                                                                                                           225
                                                                                                                                                                                                623
                                                                                                                                                                                                                                    205
                                                                                                                                                                                                                                                                         563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         288
```

Ś 밁 5 밁 δ В S

δ 밁 Ś 뭐 S 밁 S 밁 ð 밁 δ 밁 В र् ð В á 밁 S 밁 ঠ 밁 Ś

В

밁

Ś 밁 Ş 밁

á

8

```
US-09-999-833A-156
                                                                                                                                                                      sequence 156, Application US/09999833A
Patent No. 6916648
                                                                                                                                                         GENERAL INFORMATION:
                                                APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
              APPLICANT:
                                                                                               APPLICANT: Ashkenazi, Avi
APPLICANT: Baker Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                           1170
                                                                                                                                                                                                                                                                                                                                                                                                                1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1000
                                                                                                                                                                                                                                                                   1197 CÁCCACCCTGGCCTATCTGÁÁÁCGTGTG
                                                                                                                                                                                                                                                                                                       513
                                                                                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                                                                                                                                 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           384 вавр-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           324 uIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          264 rAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCTTCAGGAGACAACCAGCCAGTCATCGGGCCCCTGAAGATCCGGGAGCAGCA
                                                                                                                                                                                                                                                                                               tThrLysAlaProArgValLysTyrIle 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    {\tt yLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAla}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGTCAGCTGTCTCCACCAGCTGGCTGCCCTAC-----
                                                                                                                                                                                                                                                                                                                                                                          rAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMe 513
                                                                                                                                                                                                                                                                                                                                                                                                                GGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG-----CAGGAGCTGCCAGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                               BASnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHisAspGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAC------GGCGATGGTACTGTGAACTTGAAGAGTGCCCTGCAGTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YABRALAGLYProlleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAAGCCACGATGCCACCTGGCGTGCACTGCACTGCCTCTATGGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACATCGGCTTTGAAGATGGCTGGCTCATGCGGCAGGACACA----GAAGGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----CCTGAGAAGGTGTTCGTGCAGACACCCACAATCAACTACACA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTACACATGGTCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ferrara, Napoleon
Filvaroff, Ellen
Fong, Sherman
                                                                                  Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---TACTATGAG-----AGCTTCCCTGACCGTGACCCTAAAATCTGCTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------ACTGGCGTCCCCACACCAGACTCCTTC-----
                                                                   Dan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --AspProValPheAsnProLeuTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGCCAACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1115
                                                                                                                                                                                                                                                                                                                                                                                                                1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         304
                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                779
                                                                                                                                                                                                                                                                                                                                            1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: WOOD, WILLIAM 1.
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2630P1C65
CURRENT APPLICATION NUMBER: US/09/999,833A
CURRENT FILING DATE: 2001-10-24
PRIOR APPLICATION NUMBER: 09/918585
PRIOR APPLICATION NUMBER: 09/918585
PRIOR APPLICATION NUMBER: 09/062250
PRIOR PILING DATE: 1997-10-17
PRIOR FILING DATE: 1997-10-17
PRIOR APPLICATION NUMBER: 60/064249
PRIOR APPLICATION NUMBER: 60/064249
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065311
PRIOR FILING DATE: 1997-11-13
PRIOR FILING DATE: 1997-11-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/066364
PRIOR FILING DATE: 1997-11-21
PRIOR APPLICATION NUMBER: 60/077450
PRIOR APPLICATION NUMBER: 60/077632
PRIOR APPLICATION NUMBER: 60/077632
PRIOR FILING DATE: 1998-03-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-03-11
APPLICATION NUMBER: 60/077649
FILING DATE: 1998-03-11
APPLICATION NUMBER: 60/077791
                                                FILING DATE: 1998-03-27
APPLICATION NUMBER: 60/079920
FILING DATE: 1998-03-30
APPLICATION NUMBER: 60/079923
                                                                                                    APPLICATION NUMBER: 60/079728
FILING DATE: 1998-03-27
APPLICATION NUMBER: 60/079786
FILING DATE: 1998-03-27
                                                                                                                                                                                            APPLICATION NUMBER: 60/079689
FILING DATE: 1998-03-27
APPLICATION NUMBER: 60/079663
                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/079656
FILING DATE: 1998-03-26
APPLICATION NUMBER: 60/079664
FILING DATE: 1998-03-27
                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/079294
                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/078910
FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/078939
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/078886
FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/078936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-03-12
APPLICATION NUMBER: 60/078004
FILING DATE: 1998-03-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/077641
              FILING DATE:
APPLICATION N
                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-03-25
                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gurney, Austin L.
Hillan, Kenneth J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Williams, P. Mi
Wood, William I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Grimaldi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Godowski,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gerritsen, Mary
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kuo, Sophia S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kljavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoni,
DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Margaret Ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       James;
              NUMBER: 60/080105
                                                                                                                                                                             1998-03-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nicholas F
                                 1998-03-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  David L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>د</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>د</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic
```

밁 Ś

밁 ş 밁 Ś 밁 S 밁 á ş 밁 á

뭐

S 8 Ś 밁 Ś 문 á

PRIOR PRIOR PRIOR

APPLICATION
R FILING DATE:
APPLICATION

PRIOR PRIOR PRIOR

APPLICATION N FILING DATE: APPLICATION N FILING DATE:

NUMBER: 60/081955

PRIOR PRIOR PRIOR

FILING DATE:

NUMBER:

60/081229

NUMBER: 60/081203

1998-04-08

1998-04-09

PRIOR PRIOR

APPLICATION | FILING DATE:

APPLICATION | FILING DATE:

NUMBER:

60/081817

APPLICATION FILING DATE:

NUMBER: 60/081952 NUMBER: 60/081819

APPLICATION NUMBER: 60/081838

1998-04-

1998-04-1998-04-15 1998-04-15 1998-04-15 1998-04-09

PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: FILING DATE:

1998-04-21

60/082569 60/082568

APPLICATION NUMBER:

APPLICATION NUMBER: 60/082700 FILING DATE: 1998-04-22

APPLICATION NUMBER: FILING DATE: 1998-04

1998-04-22 1998-04-

60/082804

FILING DATE:

APPLICATION NUMBER: 60/082704

FILING DATE: 1998-04-APPLICATION NUMBER: PRIOR PRIOR PRIOR PRIOR

FILING DATE: APPLICATION

FILING DATE:

NUMBER: NUMBER:

60/081195

1998-04-08

60/081071

APPLICATION

NUMBER: 60/081049

1998-04-08 1998-04-08 1998-04-01

FILING DATE:

FILING DATE: 1998-0 APPLICATION NUMBER:

60/081070

APPLICATION NUMBER: 60/080333 FILING DATE: 1998-04-01 APPLICATION NUMBER: 60/080334

PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION N
FILING DATE:
APPLICATION N
FILING DATE:

NUMBER:

60/080327

1998-04-03

1998-03-3

NUMBER: 60/080194

1998-03-3 1998-03-31

NUMBER: 60/080328

1998-04-0:

60/080333

R APPLICATION N R FILING DATE: R APPLICATION N R FILING DATE: R FILING DATE:

NUMBER: NUMBER:

60/080165 60/080107

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                      S
                                                                            δ
                                                                                                                밁
                                                                                                                                         8
                                                                                                                                                                         밁
                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                       US-09-651-651-5 (1-546) x US-09-999-833A-156 (1-2680)
                                                                                                                                                                                                                                                                                                                                                                                              Pred.
                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                               Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR PELICATION NUMBER: 60/084643
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/085339
OR APPLICATION NUMBER: 60/085339
OR APPLICATION NUMBER: 60/085338
OR FILING DATE: 1998-05-13
OR APPLICATION NUMBER: 60/085323
OR FILING DATE: 1998-05-13
OR APPLICATION NUMBER: 60/085582
OR FILING DATE: 1998-05-15
OR APPLICATION NUMBER: 60/085582
OR APPLICATION NUMBER: 60/085700
OR PAPPLICATION NUMBER: 60/085700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085689
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085579
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085580
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085573
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085573
DR APPLICATION NUMBER: 60/085704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PILING DATE: 1998-05-07
APPLICATION NUMBER: 60/084640
FILING DATE: 1998-05-07
APPLICATION NUMBER: 60/084598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-04-30
APPLICATION NUMBER: 60/084366
FILING DATE: 1998-05-05
APPLICATION NUMBER: 60/084414
FILING DATE: 1998-05-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-05-07
APPLICATION NUMBER: 60/084639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: 1998-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/084637
                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                               Scores:
                                                                                                                                                                          195
                            113
                                                                                                                  252
                                                                                                                                                                                                                                   141
                                                        309
 363
                                                                                     97
                                                                                                                                            78
                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                              44
                                                                                                                                                                                                                                                     AACCTGGAACTGCTGCTGCTGTCATCATTGACTGCTGGATTGACAATATCAGGCTG---
                                                                                                                                                                                                      TyrThrProLeuAspPhe
                                                                                                                                                                                                                                   GTGCTGGTCCCTGGTGATTTGGGTAACCAACTGGAAGCC
GTCCCTGGCTTTGGGAAGACCTTCTCACTGGAGTTCCTGGACCCCAGCAAAAGCAGCGTG
                                                                                                                                    AspThrThrLysLeuLeuSerAla---ValAsnCysTrpPheLysCysMetValLeuAsp
                                                                                                                                                                         ---ACAGTGGTGCACTACCTCTGCTCCAAGAAGACCGAAAGCTACTTCACAATCTGGCTG
                                                                                  ProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSer-------
                              -GlyLeuSer---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER: 60/084627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER: 60/084600
                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-05-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-05-15
                                                                                                                                                                                                                                                                                                                                    2.83e-15
220.50
34.90%
23.14%
7.44%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/084441
                                                                                                                                                                                                                                                                                                                                                                                                                                            60/085697
                            -AlaIleThrGluLeuAspProGlyTyrIleThr---
                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                         AGGGCCACCCAGTTTCCTGATGGTGTGGATGTACGT
                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                       -AsnProLeuAspLeuValTrpLeu
                                                                                                                                                                                                                                                                                                                          2680
118
60
160
173
                                                                                                                                                                                                                                      ----AAGCTGGACAAGCCG
                                                                                                                                                                                                                                                                 63
                                126
                                                                                                                                                96
                                                                                                                                                                                                         77
                                                                                                                                                                                                                                      194
                                                            362
                                                                                        112
                                                                                                                     308
                                                                                                                                                                            251
```

PRIOR

FILING DATE: APPLICATION APPLICATION FILING DATE:

NUMBER: 60/083392

1998-04-29 1998-04-28 1998-04-27

APPLICATION

NUMBER: NUMBER:

60/083322 60/083336 APPLICATION APPLICATION

NUMBER: 60/082796 NUMBER: 60/082797

1998-04-23 1998-04-22

FILING DATE: FILING DATE:

FILING DATE:

APPLICATION FILING DATE: APPLICATION FILING DATE:

NUMBER: NUMBER:

60/083496 60/083495

1998-04-29 1998-04-

APPLICATION FILING APPLICATION

DATE: 1998-04-29

R FILING DATE: 1998-04-29
R APPLICATION NUMBER: 60/06
R FILING DATE: 1998-04-29
R APPLICATION NUMBER: 60/06
R FILING DATE: 1998-04-29
R FILING DATE: 1998-04-29
R FILING DATE: 1998-04-29

NUMBER: 60/083554 NUMBER: 60/083545 NUMBER: 60/083499

R FILING DATE:
R APPLICATION
R FILING DATE:
R APPLICATION

NUMBER: 60/083500

60/083559 60/083558

998-04-29

NUMBER:

60/083742

á

유

성 음 성 음

음 성 음 성

```
1047
                                                                                                                                                                                                                           1020
                                              1091
                                                                                       453
                                                                                                                                                                               433
                                                                                                                                                                                                                                                                    413
                                                                                                                                                                                                                                                                                                              974
                                                                                                                                                                                                                                                                                                                                                                                                     920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127
  473
                                                                                                                                                                                                                                                                                                                                                     393 rProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysTh
                                                                                                                                                                                                                                                                                                                                                                                                                                            384 sAsp-----AspProValPheAsnProLeuTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364 aIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHi 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         344 yLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAl 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324 uIleProSerThrSerValThrGluThrAlaLeuValAgnMetThrSerMetGluCysGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               264 rAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gly-ProLeuSerThrValTrpLy8GluTrpLeuLy8TrpCy8ValGluPheGly---Il 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAAAACGGGCCCTACTTCCTGGCCCTCCGCGAGATGATCGAGGAGATGTACCAGCTGTA 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuAr 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGGGTGAGGATGTCCGAGGGGCTCCCTATGACTGGCGCCGAGCCCCA-----AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            eGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rLeuSerGlyValThrPheGlyLeuProVal---SerGluGlyThrAlaArqLeuLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         eHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uGluTrpLeuArgLeuGluIleAlaProLy8HisTyrLeuLy8TrpLeuAspGlnHisIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGGGGCCCCGTGGTGCTGGTTGCCCACAGTATGGGCAACATGTACACGCTCTACTTTCT
BABnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHisAspGlySe 493
                                                                                       YABNAlaGlyProIleThrGlyABpGluThrValProTyrHiBSerLeuSerTrpCyBLy
                                                                                                                                                                                                                                                                                                              GGAAGCCACGATGCCÁCCTGGCGTGCAGCTGCACTGCCTCTÁTGGT------
                                                                                                                                                                                                                                                                                                                                                                                                     GGACATCGGCTTTGAAGATGGCTGGCTCATGCGGCAGGACACA-----GAAGGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----CCTGAGAAGGTGTTCGTGCAGÁCÁCCCCACAATCÁACTACÁCÁ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTACACATGGTCA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGTCAGCTGTCCACCAGCTGGCTGCCCCTAC-----AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCTTCAGGAGACAACCGGATCCCAGTCATCGGGCCCCTGAAGATCCGGGAGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAG---
                                                                                                                                   ----TACTATGAG-----AGCTTCCCTGACCGTGACCCTAAAATCTGCTTTGG
                                                                                                                                                                          rAspIleIleTyrCluThrGluGlySerLeuValSerArgSerGlyThrValValAspGl
                                                                                                                                                                                                                                                  -CTGCGGGACTAC
                                              GGCGATGGTACTGTGAACTTGAAGAGTGCCCTGCAGTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----CGGCAGCCGCAGGCCTGGAAGGACAAGTATAT
                                                                                                                                                                                                                           -ACTGGCGTCCCCACACCAGACTCCTTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----CGCAAGTTCTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            523
                                                                                                                                     1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        165
                                                                                         473
                                                                                                                                                                               453
                                                                                                                                                                                                                           1046
                                                                                                                                                                                                                                                                      433
                                                                                                                                                                                                                                                                                                                1019
                                                                                                                                                                                                                                                                                                                                                                                                     973
                                                                                                                                                                                                                                                                                                                                                                                                                                               393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    851
```

밁

8 8 8 8 8

성 음 성 음 성

 중 유

밁

유 상 유 상 명 상 명 유 수 명 수 명 수 명

Ş

```
APPLICANT: Wood, William I.

TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2630P1C74
CURRENT APPLICATION NUMBER: US/10/020,445A
CURRENT FILING DATE: 2001-10-24
PRIOR APPLICATION NUMBER: 09/91858
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 1997-10-17
PRIOR APPLICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/064249
PRIOR APPLICATION NUMBER: 60/064249
PRIOR APPLICATION NUMBER: 60/065311
PRIOR FILING DATE: 1997-11-03
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/070450
PRIOR APPLICATION NUMBER: 60/077450
PRIOR APPLICATION NUMBER: 60/077450
PRIOR APPLICATION NUMBER: 60/077450
PRIOR APPLICATION NUMBER: 60/077632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-020-445A-156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 156, Application US/10020445A Patent No. 6962797 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Ashkenazi, Avi APPLICANT: Baker Kevin P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICATION NUMBER: 60/078886 FILING DATE: 1998-03-20 APPLICATION NUMBER: 60/078936
                                                                                              APPLICATION NUMBER: 60/077649
FILING DATE: 1998-03-11
APPLICATION NUMBER: 60/077791
FILING DATE: 1998-03-12
                                                                                                                                                                              APPLICATION NUMBER: 60/077641 FILING DATE: 1998-03-11
                                                         APPLICATION NUMBER: 60/078004
FILING DATE: 1998-03-13
                                                                                                                                                                                                                     FILING DATE: 1998-03-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1136 GGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG-----CAGGAGCTGCCAGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAG---CACATCGAGATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMe 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCACCCTGGCCTATCTGAAACGTGTG 1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tThrLysAlaProArgValLysTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fong, buccang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Williams, P. N
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Roy, Margaret Ann
Shelton, David L.
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski, Paul J.
Grimaldi, J. Christopher
Gurney, Austin L.
Hillan, Kenneth J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Baker Kevin P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eaton, Dan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kuo, Sophia S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kljavin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -CTGGCCAACGC 1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1189
```

PRIOR OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/083499
OR APPLICATION NUMBER: 60/083545
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/083546
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/083554
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/08359
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/08350
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/08436
OR FILING DATE: 1998-04-29
OR APPLICATION NUMBER: 60/08436
OR APPLICATION NUMBER: 60/084414
OR FILING DATE: 1998-05-05
OR APPLICATION NUMBER: 60/084637
OR FILING DATE: 1998-05-06
OR APPLICATION NUMBER: 60/084641
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/084637
OR APPLICATION NUMBER: 60/084637
OR APPLICATION NUMBER: 60/084637
OR APPLICATION NUMBER: 60/084639
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/084639
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/084639
OR APPLICATION NUMBER: 60/0846330
OR APPLICATION NUMBER: 60/0846330
OR APPLICATION NUMBER: 60/0846330
OR APPLICATION NUMBER: 60/085333
OR APPLICATION NUMBER: 60/085333
OR APPLICATION NUMBER: 60/085333
OR APPLICATION NUMBER: 60/085333
OR APPLICATION NUMBER: 60/085323
OR APPLICATION NUMBER: 60/085323
OR APPLICATION NUMBER: 60/085582
OR FILING DATE: 1998-05-13
OR APPLICATION NUMBER: 60/085582
OR FILING DATE: 1998-05-15
OR APPLICATION NUMBER: 60/085582 R FILING DATE:

R APPLICATION N

R FILING DATE:

R APPLICATION N

R FILING DATE:

R APPLICATION N

R APPLICATION N APPLICATION NUMBER: 60/083392
FILING DATE: 1998-04-29
APPLICATION NUMBER: 60/083495
FILING DATE: 1998-04-29
APPLICATION NUMBER: 60/083496 APPLICATION NUMBER: 60/082796
FILING DATE: 1998-04-23
APPLICATION NUMBER: 60/08336
FILING DATE: 1998-04-27 APPLICATION NUMBER: 60/083322 FILING DATE: 1998-04-28 NUMBER: 60/085704 NUMBER: NUMBER: NUMBER: 1998-05-15 1998-05-15 1998-05-1 1998-05-15 60/085573 60/085580

PRIOR

APPLICATION FILING DATE: APPLICATION I APPLICATION | FILING DATE:

NUMBER:

60/080194

1998-03-31 1998-03-31 1998-03-3 1998-03-31

NUMBER: 60/080165

NUMBER: NUMBER: NUMBER:

60/080107 60/080105 60/079923 60/079920 60/079786 60/079728

APPLICATION NO FILING DATE:
APPLICATION NO FILING DATE:

1998-03-30 1998-03-30 1998-03-27

R FILING DATE: R APPLICATION N R FILING DATE: R APPLICATION N

1998-03-27

FILING DATE:

NUMBER: NUMBER: NUMBER:

FILING DATE: APPLICATION

APPLICATION FILING DATE:

NUMBER: 60/079689 NUMBER: 60/079664

1998-03-27 1998-03-26 1998-03-25 1998-03-20

APPLICATION NUMBER:

1998-03-27 1998-03-27

60/079663

APPLICATION NO FILING DATE:

APPLICATION

NUMBER: 60/079294 NUMBER: 60/078939

FILING DATE:

NUMBER:

60/079656

FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/0
FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/0

3-20 60/078910

Alignment Pred. No.: Score: Percent Similarity: Best Local Similarity: Scores:

R APPLICATION NUMBER: 60/01 R FILING DATE: 1998-04-22 R APPLICATION NUMBER: 60/01 R FILING DATE: 1998-04-22 R APPLICATION NUMBER: 60/01 R FILING DATE: 1998-04-22

: 1998-04-22 NUMBER: 60/082797 : 1998-04-22 NUMBER: 60/082700 APPLICATION NUMBER: 6 FILING DATE: 1998-04-: APPLICATION NUMBER: 6 FILING DATE: 1998-04-

DATE: 1998-04-22

60/082804

NUMBER: 60/082704

60/082569 60/082568 60/081838 60/081952

PRIOR

APPLICATION NUMBER:

1998-04-09

60/081229

APPLICATION NUMBER: FILING DATE: FILING DATE:

FILING DATE:

1998-04-

60/081955

APPLICATION NUMBER: 60/081203 APPLICATION NUMBER: 60/081195

1998-04-

1998-04-09

APPLICATION NUMBER: 60/081817 FILING DATE: 1998-04-15 APPLICATION NUMBER: 60/081819

FILING DATE: APPLICATION N FILING DATE: APPLICATION N

NUMBER:

1998-04-15 1998-04-15

FILING DATE: APPLICATION

NUMBER: 60: 1998-04-1 NUMBER: 6

FILING

DATE:

DR APPLICATION NUMBER: 60/081070

R FILING DATE: 1998-04-08

DR APPLICATION NUMBER: 60/081049.

DR FILING DATE: 1998-04-08

DR APPLICATION NUMBER: 60/081071

DR FILING DATE: 1998-04-08

APPLICATION NUMBER: 60/080333 FILING DATE: 1998-04-01 APPLICATION NUMBER: 60/080334 FILING DATE: 1998-04-01

APPLICATION NUMBER: 60/080327 FILING DATE: 1998-04-01 APPLICATION NUMBER: 60/080328

FILING DATE:

1998-04-01

2.83e-15 220.50 34.90% 23.14%

Length:
Matches:
Conservative:
Mismatches:

, B	8 8 8 8 8 8 8 8 8 8	ery -09-
264 rAssnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAs 284	165 UGluArgAspleuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuAr 185	: 7.44% Indels: 27 S1-5 (1-546) x US-10-020-445A-156 (1-2680) 44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCy8Pro 63 ::::::::::::
EARLIER APPLICATION NUMBER: 60/095,419 EARLIER FILING DATE: 1998-08-12 EARLIER APPLICATION NUMBER: 60/095,454 EARLIER FILING DATE: 1998-08-06 EARLIER APPLICATION NUMBER: 60/095,455 EARLIER FILING DATE: 1998-08-06 NUMBER OF SEQ ID NOS: 376 SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 57 LENGTH: 2687 TYPE: DNA ORGANISM: Homo sapiens FATURE: NAME/KEY: SITE LOCATION: (1614) OTHER INFORMATION: n equals a,t,g, or c US-09-489-847-57 Alignment Scores: Pred. No.: Score: 210.00 Matches: 113	11 11 Z H O B N U	Qy 364 alleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHi 384 ::: 384 shap

- da	354 gGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysAr 374 :::	Q
o V	866 CACAATCAACTACACA 881	밁
US-09-651-	334 aLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaAr 354 :::	8
Best Local Query Matc DB:		Db
Score: Percent Si	314 rGlyTrpProThrAsnIleileAsnIleGluIleProSerThrSerValThrGluThrAl 334	φ ₆
Alignment	294 aAlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSe 314	\$ 8
; TYPE: ; ORGANI US-09-402-		дь
; SEQ ID N	274 tProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAl 294	Ş
; BAKLIEK ; NUMBER (; SOFTWAR)	255 1SerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMe 274	유 성
; EARLIER ; EARLIER	CCCAGT	DЪ
; EARLIER ; EARLIER	235 uLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProVa 255	δ
; EARLIER ; EARLIER : EARLIER		da da
; CURRENT	15 sHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLe	S S
; TITLE O		F 5
; GENERAL :		Ş
; Sequence ; Patent No	175 BLEUTINTYNEGIUTNTALBLEULYBLEULATGGTYGTYGTYGTGTTGCTCACAG 601 542 CGAGATGATCGAGGAGATGTACCAGCTGTATGGGGGGCCCCGTGGTGCTTGCCCACAG 601	g Q
RESULT 13	1 TGACTGGCGCGAGCCCCAAATGAAAACGGGCCCTACTTCCTGGCCCTCCG	Db
Db 1:	rAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLy	. Q
Qy	CCTTGTGGGCTGGGGCTACACGGGGTGAGGATGTCCGAGGGGCTCCCTA	₽
Db 1:	136 pLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTy 155	Ş
	381 GAGTTCCTGGACCCCAGCAAAAGCAGCGTGGGTTCCTATTTTCCACACCATGGTG-GAGAG 439	Db
Db 1	118 ThrGluLeuAspProGlyTyrIleThrGly-ProLeuSerThrValTrpLysGluTr 136	8
	321 ACCCAGTTTCCTGATGGTGTGGATGTACGTGTCCCTGGCTTTGGGAAGACCTTCTCACTG 380	В
Db 10	107 LysSerArgProAspSerGlyLeuSer	Qy
Ov 10		Db
Qy	87 AsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCys 106	Ş
2 5	216 AAAGCTACTTCACAATCTGGCTGAACCTGGAACTGCTGCTGCCTGTGCATCATT 269	ᇝ
2 8	67 LeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaVal 86	Ş
) D	CCAAGCTGGACAAGCCGACAGTGGTGCACTACCTCTGCTCCAAGAAGACCG 2	Db .5
Oy 3	x 05-05-165-64;-5; (I AlaSerThrGlnLeuArgAlaTr	Ov 09-65
dd	7	
, yo	Best Local Similarity: 22.60% Mismatches: 165 Query Match: 7.08% Indels: 168 The Care 25	Best Loc Query Ma
3 90	33.60% Conservative: 5	Percent

US-0: Qy Db	Aligi Pred Score Perce Best Queri DB:	NR-SOLT US-09- Seque Seq	B 4	Ş (ρ <i>δ</i>	Db Q2	B &	2	D Qy	Qy db	B 2	5 5	ş 8	מם
1	Alignment Scores: 1.78e-14 Length: 123 Score: 209.00 Matches: 115 Percent Similarity: 33.79\$ Conservative: 58 Best Local Similarity: 22.46\$ Mismatches: 154 Query Match: 7.05\$ Indels: 186 DB: 3 Gaps: 25	SULT 13 :-09-402-532-13 Sequence 13, Application US/09402532 Patent No. 6498019 GENERAL INFORMATION: APPLICATE: Taniyama, Yoshio TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION AND USE FILE REFERENCE: 2456USOP CURRENT APPLICATION NUMBER: US/09/402,532 CURRENT FILING DATE: 1999-10-04 EARLIER APPLICATION NUMBER: DT/JP98/01643 EARLIER FILING DATE: 1998-04-09 EARLIER FILING DATE: 1998-04-09 EARLIER APPLICATION NUMBER: JP 10-010289 EARLIER APPLICATION NUMBER: JP 9-184885 EARLIER APPLICATION NUMBER: JP 9-184885 EARLIER APPLICATION NUMBER: JP 9-093355 EARLIER FILING DATE: 1997-07-10 EARLIER FILING DATE: 1997-07-10 EARLIER FILING DATE: 1997-07-10 EARLIER FILING DATE: 1997-07-11 NUMBER OF SEQ ID NOS: 43 SOFTWARE: SEQ ID NO 13 LENGTH: 1233 TYPE: DNA ORGANISM: Human ORGANISM: Human	:::	503 sGluHisGlySerAspIle	483 rMetAlaProGlnProGluHisAspGlySerAspValHisValGluLeuAsnValAspHi 503 ;;;	463 rValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleTh 483	CCCTGACCGTGACCCTAAAATCTGCTTTGGTGAC	443 WalserArgSerGlvThrValValAg	423 YLYSPROTYRPROASPASNTRPIleIleThrAspIleIleTyrGluThrGluGlySerLe 443	403 lPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGl 423	38 GCGCAGGACACAGAAGGGCTGGTGGAAGCCACGATGCCACCTGGCGTGCAGCT	ValPheAsnProLeuThrProTrpGluArgProProIleLysAsnVa	74 gMetLeuHisG	CTGCGGGACTAC

á

밁

5 B 5

390 942	AspProValPheAsn TCATGCGGCAGGACACAGAA	382 889
co co	leGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLys 	7 6
361 870	1 5	342 870
341 870		322 829
828		828
321	lnSerLysTyrSerGlyTrpProThrAsnIleIle	302
301 828	gVal	282 814
281 813	LeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLys	262 769
261 768	CGG Hrg	243 709
242 708	Ile ETG	649 649
222 648	TyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAsp	203 613
202 612	neAlaHisSerMetGlyAsnAsnValPheArg rTGCCCACAGTATGGGCAACATGTACACGCTC	183 553
182 552	LysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeu	163 499
162 498	leGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr ::: cacgggggaggargrccgaagggcrcccrargacggcgccgagcccca	144 442
143 441	TyrlleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPhe :::::::	124 398
123 397	ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGly	109 341
108 340	រត :	97 290
96 289	i g	77 263
76 262	alTrp	209

성 유

8 유

Ş

Ş

8 8 8 8 8

중 음 성 음

В

유정

성 유

밁

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Taniyama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION AND
FILE REFERENCE: 2456USOP
CURRENT APPLICATION NUMBER: US/09/402,532
CURRENT FILING DATE: 1999-10-04
FEALLIER APPLICATION NUMBER: DCT/JP98/01643
FEARLIER APPLICATION NUMBER: DT 10-010289
FEARLIER APPLICATION NUMBER: UP 9-184885
FEARLIER APPLICATION NUMBER: UP 9-184885
FEARLIER APPLICATION NUMBER: UP 9-184885
FEARLIER APPLICATION NUMBER: UP 9-093355
FEARLIER APPLICATION NUMBER: UP 9-093355
FEARLIER FILING DATE: 1997-07-10
FEARLIER FILING DATE: 1997-04-11
NUMBER: OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 14
US-09-402-532-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
Ś
                                망
                                                                                                         밁
                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                US-09-651-651-5 (1-546) x US-09-402-532-16 (1-1242)
                                                                                                                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                    US-09-402-532-16
                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 16
LENGTH: 1242
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 16, Applica Patent No. 6498019 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1186 GCCAACGCCACCACCCTGGCCTATCTGAAACGTGTG 1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 491 AppGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIle 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              451 ValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSer 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       391
                                                                                                             167
                                    218 CGGCTCACTACACCTCTGCCTCCCAGGCTCAAGCACTTCTCCTGCCTCAGACTC-----
                                                                     59 IleLeuAspCysProTyrThrPro-----LeuAspPheAsnProLeuAspLeuValTrp 76
77 LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAsp 96
                                                                                                                                             39 SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSer 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGGCAGCGAG---CACATCGAGATG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGTGCCAGGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrVal 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrp 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHis 410
                                                                                                             TCATTGACTGCTGGATTGACAATATCAGGCTGGAGTGCAGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAsnMetThrLysAlaProArgValLysTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHis 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTTTGGTGAC------GGCGATGGTACTGTGAACTTGAAGAGTGCCCTG 1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGCTGGTGGAAGCCACGATGCCACCTGGCGTGCAGCTGCACTGCCTCTATGGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09402532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AGCTATGAG------AGCTTCCCTGACCGTGACCCTAAAATC
                                                                                                                                                                                                                      1.8e-14
209.00
33.79%
22.46%
7.05%
                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ACTĠĠĊGTCĊĊĆACAĊĊÁĠÁĊTCCTTC
                                                                                                                                                                                                                    1242
115
58
154
186
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---CAGGAGCTG 1158
                                                                                                               GCGCAATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----CTG 1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      996
                                                                                                             217
                                      271
```

8

문 8 밁 5 밁 S 밁

Ś 밁 ð 밁 Ś 밁 5 밁 ş 밁 ঠ 밁 Ś S 밁 Ś 밁 Ś 밁 Ś 밁 Ś 밁 Ś 밁 Ś 밁

밁

```
SOFTWARE:
SEQ ID NO 18
LENGTH: 1332
TYPE: DNA
ORGANISM: Human
US-09-402-532-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
US-09-402-532-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           몽
밁
                       Ş
                                                                  밁
                                                                                           Ş
                                                                                                                                      밁
                                                                                                                                                                   S
                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PILE REFERENCE: 2456USOP
CURRENT APPLICATION NUMBER: US/09/402,532
CURRENT FILING DATE: 1999-10-04
EARLIER APPLICATION NUMBER: PCT/JP98/01643
EARLIER APPLICATION NUMBER: JP 10-010289
EARLIER APPLICATION NUMBER: JP 10-010289
EARLIER FILING DATE: 1998-01-22
EARLIER APPLICATION NUMBER: JP 9-184885
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER APPLICATION NUMBER: JP 9-093355
EARLIER FILING DATE: 1997-04-11
                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x US-09-402-532-18 (1-1332)
                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 18, Application US/09402532
Patent No. 6498019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Taniyama, Yoshio
TITLE OF INVENTION: NOVEL PROTEIN, ITS PRODUCTION AND USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1006 ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1168 CCAGGCAGCGAG---CACATCGAGATG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1069 TGCTTTGGTGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431 IleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrVal 450
                                                                                                                                                                                                             257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            511 AlaAsnMetThrLysAlaProArgValLysTyrIle 522
 389
                                                                    362
                                                                                                                                        308 CGGCTCACTACACCTCTGCCTCCCAGGCTCAAGCACTTCTCCTGCCTCAGACTC----
                                  97
                                                                                                     77
                                                                                                                                                                     59 IleLeuAspCysProTyrThrPro-----LeuAspPheAsnProLeuAspLeuValTrp 76
                                                                                                                                                                                                                                              39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIle 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGTGCCAGGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTG-----CAGGAGCTG 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnProGluHis 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSer 470
                                                                                                                                                                                                            TCATTGACTGCTGGATTGACAATATCAGGCTGGAGTGCAGTG------GCGCAATCT 307
                                                                                                                                                                                                                                         SerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSer 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCAACGCCACCACCTGGCCTATCTGAAACGTGTG 1230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----TACTATGAG--
                                 ProTyrAsnGlnThrAspHisProGluCysLysSer-----
                                                                                                   LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAsp 96
                                                                     ------CGGATAACTGGGATTACAGGCTGGTTT----
----ACAACAAAACATCCAGGGCCACCCAGTTTCCTGATGGTGTGGATGTACGTG 439
                                                                                                                                                                                                                                                                                                                                   2.03e-14
209.00
33.79%
22.46%
7.05%
                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCGÁTGGTÁCTGTGAACTTGAAGÁGTGCCCTG 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AGCTTCCCTGACCGTGACCCTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ACTGGCGTCCCCACACCAGACTCCTTC 1032
                                                                                                                                                                                                                                                                                                                    1332
115
58
154
186
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----CTG 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1068
                                      108
                                                                         388
                                                                                                                                             361
```

450 1158	IleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrVal	431 1123
430 1122	LeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrp	411 1096
410 1095	ProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHis	391 1042
390 1041	heAsn GAA	382 988
381 987	PheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLys :::	362 970
969		969
361	${\tt GluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeu}$	342
341 969	.IleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMet	322 928
927		927
321	CysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIle	302
927		913
301	SerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgVal	282
912	AGCGGTCAGCTGTCTCCACCAGCTGGCTGCCCTAC	o
281	SerLysAsnCysLys	262
261 867	YThrAlaArg GAAGATCCGG	243 808
242 807	GlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIle ::::: ::: ::: aAGTATATCCGGGCCTTCGTGTCACTGGGTGCGCCCTGGGGGGGG	223 748
747	GAC	712
711	3	652
202		œ
651	-AATGAAAACGGGCCCTACTTCCTGGCCCTCCGCGAGATGATCGAGGAGATGTAC	598
182		163
162 597	GlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr	144 541
143 540	luPhe ::: GCTGG	124 497
496	3CTTTGGGAAGACCTTCTCACTGGAGTTCCTGGACCCCAGCAAAAGCAGCG	4
123	ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGly	109

8 8 8 8

8 8 8 8

유 상 유

8 8 8 8 8 8

중 음 중

B 8 B 9

Db	γ	В	8	망	8	망	Ş
1285	511	1258	491	1204	471	1159	451
1285 GCCAACGCCACCCTGGCCTATCTGAAACGTGTG 1320	511 AlaAsnMetThrLysAlaProArgValLysTyrTle 522	1258 CCAGGCAGCGAGCACATCGAGATGCTG 1284	491 AspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIle 510	1204 CAGTGCCAGGCCTGGCAGAGCCGCCAGGAGCACCAAGTGTTGCTGCAGGAGCTG 1257	471 TrpCygLygAgnTrpLeuGlyProLygValAgnIleThrMetAlaProGlnProGluHig 490	1159 TGCTTTGGTGACGGCGATGGTACTGTGAACTTGAAGAGTGCCCTG 1203	451 ValAspGlyAsnAlaGlyProlleThrGlyAspGluThrValProTyrHisSerLeuSer 470

Search completed: November 22, 2005, 13:54:28 Job time : 237 $\ensuremath{\text{secs}}$

```
Command line parameters:

-MODEL-frame+_p2n.model -DEV=xlh
-O_-Cgn2 1/USPTO_spool/US09651651/runat_18112005_101832_20311/app_query.fasta_1.711
-DB=publIshed App_ications WA_Main -QFWT=fastap -SUFFIX=rnpbm -MINMATCH=0.1
-LOOPEXT=0 -UNITS-bits -START=1 -END=-1 -MARRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOLALIGN=200 -THR_SCORE=pct -THR_MX=100
-THR_MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXIEN=200000000 -USER=US09651651_@CGN 1 797 @runat_18112005_101832_20311
-NCPU=6 -ICPU=3 -NO_MMAP -LARGEQUERY -NGE_SCORES=0 -WAIT_-DSPBLOCK=100
-LONGLOG -DEV_TIMEDUT=120 -WARN_TIMEDUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPOP=6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein -
                                                                                                                                                                                                                           Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                 1953
595
569.5
482
482
                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-5
2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      November 22,
                                                                                                                                                                                                      Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9793542 seqs, 4134689005 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MGANSKSVTASFTVIAVFFL.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Published_Applications_NA_Main: *
    65.9
20.1
19.2
16.3
16.3
15.5
11.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                           /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10B_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10B_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10B_PUBCOMB.seq:*
                                                                                                                                                                                                      Length
    528
-848
924
1383
2326
                                                                                                                                1719
1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2005, 10:59:19 ; Search time 834 Seconds
                                                                                                                                                                                                        BG
7 US-10-437-963-76086

7 US-10-424-599-16008

8 US-10-424-599-134518

8 US-10-425-115-93907

9 US-10-425-115-137717

9 US-10-425-115-33791

9 US-10-425-15-93909

9 US-10-883-760-45

9 US-10-424-599-17331
                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (without alignments)
5413.765 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .DSESIPGKRTAVWELDKSGY 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19587084
                       Sequence 76086, A
Sequence 16008, A
Sequence 134518,
Sequence 93907, A
Sequence 937717,
Sequence 93909, A
Sequence 45, Appl
                                                                                                                                                                                                      Description
    Sequence
    9 45, Appl
9 17331, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-437-963-76086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ი
                                                                          Pred. No.:
                                                Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
APPLICANT: Wu, Wei
APPLICANT: Boukharov, Andrey A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 76086, Application US/10437963 Publication No. US20040123343A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
```

45	44	43	42	41	40	39	3 8	37	36	3 5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	220.5	20.	20.	N	N	w	w	w	w		5	57.	61.	26	•	J	æ	28	283.5	8
7.4	٠	•		•	7.4	7.4	7.4	7.4	7.4	7.4	٠	7.4	7.4	7.4	7.4	7.4	7.4	•							•	æ .5	•	•	•	•	•	•	•	•	•	
																										2838										
w	w	w	w	w	w	w	w	ω	ω	W	ω	ω	ω	w	w	7	σ	σ	σ	w	w	σ	7	σ	σ	7	9	9	0	σ	œ	7	σ	თ	σ	σ
-09-978-423A-15	-09-999-834A-1	-09-918-585A-15	-09-978-824-15	-09-981-915A-15	-09-999-833A-15	-09-978-564A-15	-09-978-403A-15	-09-978-191A-15	-09-978-585A-1	-09-978-608A-15	-09-978-189-15	-09-999-832A-15	-09-978-192A-1	-09-978-697-15	-09-978-295A-1	-10-755-889-577	51-17	-10-323-051-1	-10-323-051-1	-09-880-107-2	-09-919-497	-10-217-939	-10-478-466	-10-323-051	-10-323-051-1	-10-424-599	-10-509-796	-10-321-802-1	-10-321-802-2	-10-321-802-3	-10-425-115-55	-10-437-963-3827	-10-321-802-1	0-321-802-2	-10-321-802	0-321-802-2
equence	equence	equence	equence	equence	equence	quence	equence	equence	nce	equence	equence	Φ	equence	equence	equence	equence	Sequence 17	equence	equence	equence	equence	equence	nce	equence	equence	equence	equence 1	equence 1	Sequence 21	equence 3	equence 5	equence 3	equence 1	equence 2	æ	Sequence 25
6, Ap	,	,0	,	,	,	,	,0	,		.00	.0	·o	ຸດ	0	, on	1	7, App1	•	•	*	, App	Appl		App		5713,	App1	, App	-	, App	049,	278,	, App	, App	, Ap	•

ALIGNMENTS

```
Percent Similarity:
Best Local Similarity:
                                                                         Alignment Scores:
                                                                                                                 OTHER INFORMATION: Clone ID: US-10-437-963-76086
                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 76086
LENGTH: 1719
                                                                                                                                                                                                                                                                                                  APPLICANT: Li, Ping
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21[53221] B
                                                                                                                                                   TYPE: DNA
ORGANISM: Oryza sativa
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                       Wu, Wei
Boukharov, Andrey A.
Barbazuk, Brad
5.41e-226
1953.00
74.02%
65.30%
                                                                                                                                 PAT_MRT4530_76111C.1
 Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                               Associated With
```

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x US-10-437-963-76086 (1-1719)
                     874
                                                 324
                                                                                     814
                                                                                                                    304
                                                                                                                                                      766
                                                                                                                                                                                      287
                                                                                                                                                                                                                         706
                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                         646
                                                                                                                                                                                                                                                                                                                         247
                                                                                                                                                                                                                                                                                                                                                           985
                                                                                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                                                                                              526
                                                                                                                                                                                                                                                                                                                                                                                                                                                              207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                                                 GluIleProSerThrSerValThrGluThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGlu 146
||||||||||:::||||||
GGTCCTCTTTCTTCAGTGTGGAAAGAATGGGTCAAATGG------432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAGGCGATGGCGGCGCGGATTTC-----GACTACCGGAAGCTCTCGGGGATAATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerValThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr
                                                                                                      CysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIle
                                                                                                                                                                                                                                                                                                         SerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSer 266
                                                                                                                                                                                                                                                                                                                                                           GCATACTTTGCAGTTGGTGCACCTCTTCTTGGTTCTACTGAAGCAGTTAAAGCTGCTCTT
                                                                                                                                                                                                                                                                                                                                                                                  AlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                           TGGTTGAAACTAGAAATCGCTCCCAAGCATTACATCCGATGGCTTGACGAACATATACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGTCAAGGCCTGACAGTGGTCTTTCTGCAATTACAGAGTTAGACCCTGGTTATATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCGACTTCAACCCCCTCGACTCCGTCTGGCTCGACACCCGCCAAGCTCTTATCTGCTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrPro
                   TrpThrHisPhe-----SerGlyGlyAlaAlaLysLysAspLysArgValTyrHis
                                                                                                                                                                                                                         TTTGGTTCATCTTTATGGCTCATGCCCTTCTCAGAATATTGCAAAGCTGATAATATATAC
                                                                                                                                                                                                                                           PheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSer
                                                                                                                                                                                                                                                                                         TCTGGAGCAACATTTGGTCTTCCAGTCAGCGAGGGAACAGCACGATTGATGTTTAATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGCCTTCTTTAGTGTTTGCTCATTCCATGGGTAATAATGTGTTTCGCTACTTTCTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGlu 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATTGCTGGCTCAAATGCATGCTGCTCGACCCTTACAACCAGACGGATCATCCAGAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGGGTTCGCGTCGACGCAGCTGCGCGCGTGGTCTGTGCTGGATTGCCCCTACTCGCCC
                                                                                     TGTGATGAAATGGAATATAAGTCTGAATACTCAGGATGGCCCACAAACCTTGTCAGCATC
                                                                                                                                                      7 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----TTAACTTTTGAAACTGCATTGAAACTTCGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7 64
                                                   ----AlaLeuValAsn 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         106
                                                                                                                                                                                                                                                                                         705
                                                                                                                                                                                                                                                                                                                                                                                                                              585
                                                                                                                                                                                                                                                                                                                                                                                            246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99
                                                                                                                    323
                                                                                                                                                      813
                                                                                                                                                                                        303
                                                                                                                                                                                                                                                                                                                                                             645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            213
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
US-10-424-599-16008
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
Alignment Scores: Pred. No.:
                                                     US-10-424-599-16008
                                                                                      APPLICANT: LA ROBA Thomas J
APPLICANT: Kovalic David K
APPLICANT: Covalic David K
APPLICANT: Covyoval
APPLICANT: Covyoval
APPLICANT: Covyoval
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(5323)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 16008
LENGTH: 1760
TYPE: DNA
ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                       Sequence 16008, Application US/10424599 Publication No. US20040031072A1 GENERAL INFORMATION:
                                                               FEATURE:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       445
                                                                                                                                                                                                                                                                                                                                                                                                                                                1594 AATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGlu 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAGATGGTACTCTGTTTAAAACCATAAAGGATTGGGACCCTCAGAGCATAGGGCTTATC 1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPhe 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaAspGlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeu 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTGAAGATGCTGAGAGCATTCCGGGATGGAGAACAGCCGTCTGGGAGCTTGATAAAGCA 1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrGluAspSerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSer 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTAGGCCAGGGCATACTCCCAAACATGACGAGGACTCCACATGTGAAGTACATAACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaProGlnProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGlu 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCTACAATTCTCTCATGGTGCAAGAACTGGCTTGGGCCAAAAGTGAACATAACTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCAGATCAGGTAATTCTGTTACTGGAAAGCCCAACAATTCCAGCGGAGACGGAACGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIle 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGACCCCCAATAAAGAATGTGTTCTGCATATATGGGCTTGATTCAAAGACTGAGGTAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGly 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrVal 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATGAATTTGAAGGGTCTCTACTATCAAGGCAGAATAAAATAGTAACACAATTTATTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATTATTTTGCACCGAGTGGAAAACCATATCCAGATAACTGGATAATAACTGATATTATT
                                                                     Clone
   7.6e-61
                                                                     ID:
                                                                   PAT_MRT3847_114461C.1
   Length:
     1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----Val 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           484
```

á

밁 Ś

음 성

á 밁 밁 S 밁 Ş 밁 Ş

ş

밁 á 밁 В

Ś 멍 Ş 밁 Ś 5 밁 á 밁 Ś 망 á 밁 Ś

멂

```
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                         APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
APPLICANT: Kovalic David K
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecul
TITLE OF INVENTION: Plants and Uses Thereof
FILE REFERENCE: 38-21 (5323) B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 134518
LENGTH: 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
US-10-424-599-134518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-651-651-5 (1-546)
 밁
                        Ś
                                                                                Best Local Similarity:
Query Match:
DB:
                                                    US-09-651-651-5 (1-546)
                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                           ; OTHER INFORMATION: US-10-424-599-134518
                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 134518, Application US/10424599 Publication No. US20040031072A1 GENERAL INFORMATION:
                                                                                                                                                                                                                      ORGANISM: Glycine FEATURE:
                                                                                                                                                                                                                                                 TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               431
  152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71
                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHis 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATAACTGGATCATTACGGATGTCGTTTATGAGTTTGAAGGATCTCTAATCTCAAGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisLeu-----LysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCAGAGCATGATGGCTCAGATGTACAAATTAAATTGAATGTGGAACATCACCATGAAGAA 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCTTGACTTTAAAAATAGGTTGGTTACTACTATGCTCCTAGCGGCAAGCCTTACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTGAAAGTCTTCCTGGAAAGAGGACAGCAGTTTGGGAGCTTGATAAAGCAAATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATATCGTTCCAAACATGACAAGATCACCAAGGGTGAAGTATATAACATATTATGAAGAT 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAsp 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCCTTTCCTGGTGCAAAAACTGGCTTGGACCGAAAGTGAACATAACAAAAGCTCCACAG
GTCCTCCTCGCCGTGCTCGCCGGAGCCACCTCA---GACGACGCGCGCGAGCTC-----
                      ValPhePheLeuIleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGly
                                                                                                                                                                                                                                   max
                                                                                                                                                                                                        Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           595.00
87.77%
75.54%
20.07%
                                                                                           1.39e-58
569.50
87.60%
81.40%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    x US-10-424-599-16008 (1-1760)
                                                      ×
                                                    US-10-424-599-134518 (1-528)
                                                                                                                                                                                                        ID:
                                                                                                                                                                                                      PAT_MRT3847_9247C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches:
Conservative:
Mismatches:
Indels:
                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                              Molecules and Other Molecules Associated Thereof for Plant Improvement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105
17
15
2
                                                                                528
105
8
12
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130
                              36
                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Chou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53222)B
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 93907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                      δ
                                                       밁
                                                                           S
                                                                                                            밁
                                                                                                                                     á
                                                                                                                                                                   밁
                                                                                                                                                                                           á
                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                              ; OTHER INFORMATION: US-10-425-115-93907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-425-115-93907
                                                                                                                                                                                                                      US-09-651-651-5 (1-546) x US-10-425-115-93907
                                                                                                                                                                                                                                                                                                                      Pred.
                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 93907, Application US/10425115 Publication No. US20040214272A1
                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 848
                                                                                                                                                                                                                                                                                                                        No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    323
                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
     526
                                                         466
                                                                                   109
                                                                                                               406
                                129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                       89
                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProTyrAsnGlnThraspHisProGluCysLysSerArgProAspSerGlyLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspTyrSerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAla
  TTCAACTTTCTTACGCTCATTTACATT-----GCTTTCTCTGCGGTAAATTGC
                                                                                                                                                                                       PheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaValAsnCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATTAAGTGGTGTATTGAATTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pLeuLysTrpCysValGluPheGly 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCGACACCAAACTTCTTTCTGCTGTCAATTGCTGGCTTAAGTGCATGGTGTTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrp
                                                                      ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyPro
                                                                                                              TGGCTTAAATGCATGCTTGAACCCTATAATCAGATAGACCATCCCGAATGCAAGTCA
                                                                                                                           TrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSer
                                                                                                                                                                                                                                                   1.3e-47
482.00
88.68%
80.19%
16.26%
                                                                                                                                                                                                                                                                                                                                                                            Clone ID:
                                                                                                                                                                                                                                                                                                                                                                           MRT4577_185630C
                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   527
                                                                                                                                                                                                                          (1-848)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and Other Molecules Associated With
                                                                                                                                                                                                                                                      1 4 8 9 5 8 4 8
1 4 8 9 5 8 8 4 8
                                148
                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  262
                                                                                       128
                                                                                                                                                                       405
                                                                                                                                                                                                 88
                                                            525
                                                                                                                  465
```

밁 Ś 밁 S В S 밁 ई 밁 Ś 밁 ঠ

밁 á

```
APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Chou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53/22)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 137717
LENGTH: 924
                                                                                                    RESULT 6
US-10-425-115-93909
; Sequence 93909, Application US/10425115
; Publication No. US20040214272A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
US-10-425-115-137717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Zea mays; FEATURE:
OTHER INFORMATION:
US-10-425-115-137717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores
APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Plants
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53222)B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 137717, Application US/10425115 Publication No. US20040214272A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                                                                                                                                                                         775
                                                                                                                                                                                                                                                                                   142
                                                                                                                                                                                                                                                                                                                  715
                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                    595 CTTTTCTCTGCGGTAAATTGCTGCCTTAAATGCATGCTGCTTGAACCCTATAATCAGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                149
                                                                                                                                                                                              835 TCAATGCTTGAGGAGAGAGATCTGTACTTTCACAAATTAAAG
                                                                                                                                                                                                              162 ThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLys 175
                                                                                                                                                                                                                                                                                                                                                                            655 GACCATCCCGAATGCAAGTCAAGGCCTGATAGTGGTCTTTCTGCAATTACAGAGCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                        102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuTyrPheHisLysLeu 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAsp 168
                                                                                                                                                                                                                                                                       GluPheGlyI1eGluAlaAsnAlaI1eValAlaValProTyrAspTrpArgLeuSerPro
                                                                                                                                                                                                                                                                                                                                                                                             AspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAsp
                                                                                                                                                                                                                                                         GAGTTTGGCATTGAAGCTAATGCAATTATCGCTGTTCCGTATGATTGGAGACTGCCCCCA
                                                                                                                                                                                                                                                                                                                 CCTGGTTATATAACAGGTCCTCTCTCTCAGTATGGAAAGAATGGGTCAAATGGTGTGTA
                                                                                                                                                                                                                                                                                                                                    ProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Clone ID: MRT4577_57075C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.49e-47
482.00
94.68%
88.30%
16.26%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x US-10-425-115-137717
                                Molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                and Other Molecules Associated With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-924)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Other Molecules Associated With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          924
0 5 6 3 4
                                                                                                                                                                                              876
                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                         834
                                                                                                                                                                                                                                                                                       161
                                                                                                                                                                                                                                                                                                                  774
                                                                                                                                                                                                                                                                                                                                                                          714
                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/10/425,115;
CURRENT FILING DATE: 2003-04-28;
NUMBER OF SEQ ID NOS: 369326;
SEQ ID NO 93909;
LENGTH: 1383;
TYPE: DNA
ORGANISM: Zea may8;
FEATURE:
OTHER INFORMATION: Clone ID: MRT4577_185632;
US-10-425-115-93909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                        S
                                                                          밁
                                                                                                    á
                                                                                                                                     밁
                                                                                                                                                                                              밁
                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-651-651-5 (1-546) x US-10-425-115-93909 (1-1383)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No.:
                                                                                                                                      1233
                                                                                                                                                                                                                                                                                                                 1053 TAAGAGTTAATGGCCCAGTGACGGATTCAAGGTATCCTGCTCACCAACAGATCCCACAAG
                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluLeuAspProGlyTyrIleThr------GlyProLeuSerThrValTrpLysGluTr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyr
                                                                          BHisTyrLeuLys-----TrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAl 233
                                                                                                                                                                                                                                                                                   aLeuLysLeuArgGlyGlyPro---
                                                                                                                                                                                                                                                                                                                                                                             TGTAACACTTGCCTCAACTTGTTATGAAGCAACCAAATGCTATACATCTGTTAGGATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        pTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATCAGACAGACCATCCCGAATGCAAATCAAGGCCTGATAGTGGTCTTTCTGCAATTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGTTGGAATGCTCTTCAACTTTCTTA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAsp
                                            aProLeuLeuGlySerVal-----GluAlaIleLysSerThrLeu
                                                                                                                                                                                                                                                         CATACGGTTACCGCCAAATGCCTGCAAGGTTGGACAGTACCAACCCATCACAGGCCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGGAGACTGCCCCCATCAATGCTTGAGGAGAGAGATCTGTACTTTCACAAATTAAAGTT
                                                                                                                                      TTACTCGAATCCAATATTTTGCTCTTTT---GAATTCCTTGGTGTACACTGGCAAATATT
                                                                                                                                                              rMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLy
                                                                                                                                                                                                 GAGGTTACACGCTGCAGTCACAGAAGGAAACATTATTTGAAGAGTTGCCATTTTGAAGAG
                                                                                                                                                                                                                             ----SerIleValPheAlaHisSe
                  TTGGGTCAGATCTAATAAAGCATCAGCATTAAATTTACAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.02e-44
461.00
50.19%
42.80%
15.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MRT4577_185632C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1383
110
19
43
85
                                                                                                                                                                                                                                                                                                                                                 ----ThrPheGluThrAl 181
                     1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCTCG
                                                                                                                                                                  215
                                                                                                                                                                                                                               195
                                                                                                                                                                                                                                                                                        188
                                                                                                                                                                                                                                                                                                                    1112
                                                                                                                                                                                                                                                                                                                                                                               1052
                                                                                                                                                                                                                                                                                                                                                                                                                                        992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         692
                                                                                                                                                                                                 1232
                                                                                                                                                                                                                                                            1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                           176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78
                                                                               1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               752
```

Wed

```
US-10-883-760-45

VS-10-883-760-45

Sequence 45, Application US/10883760

Publication No. US20050035174A1

GENERAL INFORMATION:
APPLICANT: Yadav, Narendra

APPLICANT: Zhang, Hongxiang
TITLE OF INVENTION: ACYLTRANSFERASES FOR ALTERATION OF POLYUNSATURATED FATTY ACIDS
TITLE OF INVENTION: ACYLTRANSFERASES FOR ALTERATION OF POLYUNSATURATED FATTY ACIDS
TITLE OF INVENTION: AND OIL CONTENT IN OLEAGINOUS YEASTS
FILE REFERENCE: CL2302 US NA
FILE REFERENCE: CL2302 US NA
CURRENT APPLICATION NUMBER: US/10/883,760

CURRENT APPLICATION UNMBER: US/10/883,760

CURRENT FILING DATE: 2004-07-06

NUMBER OF SEQ ID NO 45

SOOTWARE: PAtentIn version 3.2

SEQ ID NO 45

LENGTH: 2326

TYPE: DNA
ORGANISM: Yarrowia lipolytica
FEATURE:
NAME/YEVE. Total forture
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; NAME/KEY: misc feature
; LOCATION: (2271)..(2271)
; OTHER INFORMATION: n is a,
US-10-883-760-45
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
 밁
                         S
                                                           밁
                                                                                 ঠ
                                                                                                                밁
                                                                                                                                                S
                                                                                                                                                                                 밁
                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                              ર્
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-651-651-5 (1-546) x US-10-883-760-45 (1-2326)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No . :
 1231
                                                            1171
                                                                                                                        1111
                                                                                                                                                                                                                                              1009
                                                                                                                                                                                   1051
                                                                                                                                                    164
                                                                                                                                                                                                              144
                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                        104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          709
                            204
                                                                                         184
                                                                                                                                                                                                                                                                                                        949
                                                                                                                                                                                                                                                                                                                                                                      688
                                                                                                                                                                                                                                                                                                                                                                                                                                   829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              769
                                                                                                                                                                                                                                                                                                                                                                                                   84
                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGTGGGCAAGGCTATGAAGAGCGAGGGACTCAACGCCAAGTACCCGGTGGTGCTGGTG
                                                                                                                                            LeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLys 183
                                                                                                                                                                                                           GlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLys 163
                                                                                                                                                                                                                                                                                                                                 ProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGly 123
                                                                                                                                                                                                                                                                                                                                                                      CTGGACAAGTACTGCTGGCTGCAGAACCTGATGCTGGACACAGAGACCGGTCTAGACCCT 948
                                                                                                                                                                                                                                                                                                                                                                                              SerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHis 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGGCGTCATCTCCACGGGACTGGAGAGCTGGTCCCTGGAGGGAACCGAGGAGTGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIle------LeuAspCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlavalGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
|||:::::|||
TTCATGAAGTGGGCTGAGGCCGAGGAATATGGAGGAGGAGGTCCCAACTGGGTCAATGAC 1290
                                                                                                                                                                                   GGATACGATACGGATACAATGTCTGCTGCGGCGTACGACTGGAGACTGTCCTACCCTGAT 1110
                                                                                                                                                                                                                                                                         TyrlleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPhe 143
                                                                                                                                                                                                                                                                                                         CCCCATTTCAAGCTGCGAGCCGCCCAGGGATTTGCCTCCGCCGACTTCTTTATGGCAGGC 1008
                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCGAGTCGCACTTCAGAAAGCGAATGTGGGGCTCCTGGTACATGATCCGAGTCATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeu
                                                              ATGACAGGTGAGAAGACAGTTCTGACGGGCCATTCCATGGGCTCCCAGGTCATCTTCTAC
                                                                            LeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyr
                                                                                                                        TTGGAGCACCGAGACGGATACTTCTCCAAGCTCAAAGCTTCAATCGAAGAGACTAAGCGT 1170
                            PheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.01e-28
325.50
38.14%
24.54%
10.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                -TGGCTGTGGAACAAGCTGCTCGAGAACCTGGCTGTTATT 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2326
119
66
202
99
                                                                                                                                                                                                                                                                                                                                                                                                                                   888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46
                                223
                                                              1230
                                                                                            203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ·δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                        RESULT 8
US-10-424-599-17331
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                           Sequence 17331, Application US/10424599 Publication No. US20040031072A1 GENERAL INFORMATION:
APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53223)B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1561
                                                                                                                                                                                                      1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          224
                                                                                                                                                                                                                                 471
                                                                                                                                                                                                                                                                                              451
                                                                                                                                                                                                      GTGTCACCGATGG
                                                                                                                                                                                                                                 pCysLysAsnTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerThrLeuSerGly----
                                                                                                                                                                                                      1974
                                                                                                                                                                                                                                   475
```

```
1621 GAAACCGTTGACTTCCTGTATTCTCAGTCTCCCGAGTGGTTTGTGAACCGAACCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1351 GCTCTTCTGTCTGGAGAAATGAAGGATACCGTGCAGCTGAACGCGATGGCTGTGTATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        335 uValAsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uleuAlaAsp------GlyThrLeuPheLysAlaIleGluAspTyrAspProAs 371
:::||
GAGAAGCGACCTTCTACCTGGAGCAACCCTCTGGAAG------176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATATTGAATCCTTTGTCGACATTTCCGGCTCCATGCTGGGTACTCCCAAGACCCTGGTT 1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTTCATCAAGTTCAAGGAGTCCTTGACCGAGTACTCTGCTAAGAACCTCACCATGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTTCCATGATTCCCAAGGGTGGTAAGGCTATCTGGGGTGATCATTCTGGAGCCCCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAla 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu-----TrpLeuMetPro
                                                                                                    CGTCAGTATCGCTGGAAACGACCCTGATGGTGTGCTTATGGGTCAG-
                                                                                                                                                     eIleThrAspIleIleTyrGluThrGluG|\qSerLe\ValSerArgSerGlyThrValVa 451
                                                                                                                                                                                                              GGATACCGAGCGAGCCTACTACTACCAGGATGAGCCCAATCCCGAGCAGACCAACTTGAA 1880
                                                                                                                                                                                                                                                               uLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIl 431
                                                                                                                                                                                                                                                                                                                                                                               oLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGlyAlaHisLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G-----CTTACTCCTTTGGAA-----TTGCCAAGACTCGAAAGCAGGTTGAGCAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LysLysAspLysArgValTyrHisCysAspGluGlu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGAGCAGTTCTTCTCTCGACGAGAGCGAGCCGATCTGCTGCGAACATGGGGAGGAATT
                                           lAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTr 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---- ProThrAsnIleIleAsnIleGluIleProSerThrSerValThrGluThrAlaLe
                                                                                                                                                                                                                                                                                                                                 ---- CCCCCGATCTC-AAGATCTACTGCTTCTATGGAGTCGGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GluTyrGlnSerLys-TyrSerGlyTrp--
GGCGATGGAACCGTCTCCCTTGTGACCCATACCAT 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GATGACGAGCCCGGCCAGAATGTCACCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ValThrPheGlyLeuProValSerGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                              ----CTGCTCTCCC
                                                                                                                                                                                                                                                                                                                                                                                          411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              243
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         335
                                                                                                             1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307
```

With

```
Sequence 25, Application US/10321802

Publication No. US20030200563A1

GENERAL INFORMATION:

APPLICANT: Butler, Karlene H.

APPLICANT: Cahoon, Edgar B.

APPLICANT: Cahoon, Rebecca E.

APPLICANT: Famodu, Omolayo O.

APPLICANT: Hall, Sarah E.

TITLE OF INVENTION: Phopholipid:diacylglycerol Acetyltransferases

FILE REFERENCE: BB1486 US NA

CURRENT APPLICATION NUMBER: US/10/321,802

CURRENT APPLICATION SATE: 2002-12-17

NUMBER OF SEQ ID NOS: 36

SOFTWARE: Microsoft Office 97

SEQ ID NO 25

LENGTH: 2398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; FEATURE:
; OTHER INFORMATION: Clone ID: PAT_MRT3847_115655C.1
US-10-424-599-17331
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
US-10-321-802-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-651-651-5 (1-546) x US-10-424-599-17331 (1-1433)
Alignment Scores: Pred. No.:
                                                  US-10-321-802-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 17331
LENGTH: 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: unsure
LOCATION: (1)..(1433)
OTHER INFORMATION: unsure at all n locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                TYPE: DNA ORGANISM: Helianthus
                                                                                                                                                                                                                                                                                                                                                                                                                     308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361 LeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            308 GluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIleProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             288 ThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                    381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGTTTAAGACAAACTTATCTGGGTGGCCAACAAAAATAATCAACATTGAAATTCCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCCACGCGTCCGGGCAAGTGGGTCCACCA-----ACATATCACTGTGATGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    LysLeu 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTTTCAAGGCAATTGAAGATTATGACCCAGACAGCAAGAGGCTCTTGTACCTGTTAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                     AAGTTA 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGAGTGCGGACTACCTACTCAATTATCTTTCTCAGCTCGGGAAATATCAGATGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTCGTGCATTTGATGCATATCCTTCATTCTCAGAAATACCTGAGGCCAACTTGTCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.27e-26
309.00
72.55%
59.80%
10.42%
 .2e-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----SerValThrGluThrAlaLeuValAsnMetThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches: Indels:
Length:
 2398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-651-651-5 (1-546) x US-10-321-802-25 (1-2398)
                                                            Ş
                                                                                                  문
                                                                                                                            δ
                                                                                                                                                                  밁
                                                                                                                                                                                                δ
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                밁
                                                                                                                                                                    1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       193 aHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAl
                                                                                                                                                                                                                                                                                                                                                                                                                                        796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14 ValileAlaValPhePheLeuIleCys-----GlyGlyArgThrAlaValGluAsp--- 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGTGGGAAGGGCACCAGTGT------ATGGATGGATTGTTCCGGAAAAAGGCT
 eSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGl 310
                                                                                                                                rPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSe 270
                                                                                                                                                                    GGAAGCTAAAGATATTGCATCAGTCAGGGCCCTTGCACCAGGTGTGTTAGACTCGGATTT
                                                                                                                                                                                                                                                                                                                                                                   AAAGAGCAATATAGAACTGATGGTTGCTACTAATGGCGGGAAAAAAGGCCGGTTATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGly---ProSerIleValPheAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oTyrAspTrpArqLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLy 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTAGACAACAAAACCGGGATGGATCCACCGGGTATACGGGTCAGGCCTGTCAGTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lTrpLeuAspThr---ThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetVa 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeuVa 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyAspTyrSerLysLeuSerGly-IleIleIleProGlyPheAlaSerThrGlnLeuAr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCGATATCCGGACCGTTTCCGGATCCTCCCGGAGTTAAGTGTTTGAAAGAAGGTTTGAA 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GIGGTTGTTGTTTTTGTATAATGCTATGCCGGCGTCGTTCCCGCAGTTTGTGACGGA 354
                                                                                                                                                                                                                                                                                                        ACCAGCACCAATGGGTGGCGGAGGTGGACCAGATTGGTGTGCTAAACACATAAAAGCGGT
                                                                                                                                                                                                                                                                                                                                  aProLysHisTyr-------LeuLysTrpLeuAspGlnHisIleHisAlaTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATATGACTGGAGACTCTCGTTTCAAAACACAGAGGTAAGAGACCAAACACTGAGCCGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTTTTGATTGCTAACTTGGCACGTGTTGGCTATGAAGAGAAAAATATGTATATGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValPr 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPh 290
                                                                                                  ATTTCAGATTCAAACGTTACAACATGTAATGAGA---ATGAGCCGCACATGGGATTCAAC
                                                                                                                                                                                                                                    GATGAATATCGGTGGACCATTTTTAGGTGTCCCAAAAGCTGTAGCCGGGCTTTTCTCTGC
                                                                                                                                                                                                                                                                     rPheAlaValGlyAlaProLeuLeuGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284.00
35.48%
22.29%
9.58%
                                                                                                                                                                                                   -SerValGluAlaIleLysSerThrLeuSerGlyVal------Th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GCATCCGGTGTTTTGTGCCGGGGATTGTGACCGGTGGACTTGA 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              142
84
258
153
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GluThrGluPheHis 35
                                                                                                                                                                        1086
                                                                                                                                                                                                                                      1026
                                                                                                                                                                                                                                                                                                        966
                                                                                                                                                                                                                                                                                                                                         228
                                                                                                                                                                                                                                                                                                                                                                                                                                          855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                        1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             513
                                                                                                                                                                                                       250
                                                                                                                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              633
                                                                                                                                                                                                                                                                       237
                                                                                                                                                                                                                                                                                                                                                                          906
```

```
RESULT 10

US-10-321-802-23

Sequence 23, Application US/10321802

Publication No. US20030200563A1

GENERAL INFORMATION:

APPLICANT: Cahoon, Edgar B.

APPLICANT: Cahoon, Rebecca E.

APPLICANT: Famedu, Omolayo O.

APPLICANT: Hall, Sarah E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                     日
                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1756
                                                                                                                                                                                                                         2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439
                                                                                                                                                                                                                                                               521
Cahoon, Edgar B.
Cahoon, Rebecca E.
Famodu, Omolayo O.
Hall, Sarah E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACACCTGCGGCAGAGTGCTACATACCATTCCAAATT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAGATCTATTCAATGTATGGAGTTGGCATCCCAACCGAAAGAGCATATGTCTACAAACT 1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----PheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyrAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAAAACGACACTGAATCTCCCACCGTAAGTGATTCTGCAAGTGAAGTAACACATGCAAA
                                                                                                                                                                                                                       TGGAGGTGATCAGGTGTACACTGGTATATTCGAGTGGTCCGAGAAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGGATGAAACAGTACCAGCACTAAGCGCGCGGTTACATGTGCGCAAAGGGTTGGCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAGCAAAGGATAAAGGCGAGGACGGGTGTTTAAAAGACGGG---GTTTATACGGTTGA 1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTGTGGACCGAATACCATGACATGGGATTTGGTGGAATCAAGGCTGTTGCCGAGTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGATAGAATTTAGAGGTGCTGTGAAGGGTATCAATGTTGCAAACAATACATGTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTATGGAAGGÁTAGTATCGTTCGGGAGAGATGTAGCAGAGGCACCATCTTCAGAGATCGA 1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nSerLysTyrSerGlyTrpProThr-----
                                                                                                                                                                                                                                                                                                                                            lAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLys--
                                                                                                                                                                                                                                                                                                                                                                                      TCCATCCAACTTTCTCGAGGGCCGGGGCACTCAAAGCGGGGCCCATGTGGATATTATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAAACGCGATTCAATCCTTCGGGAATTAAAACTTATGTCAGGGAATACGATCACAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rGlyAspGluThrValProTyrHisSerLeuSerTrp-----CysLysAsnTrpLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -AlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluTh 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACACATTACAAGTATTGGTCTAACCCATTGGAGACAAAGTTACCAAACGCTCCAGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGCGGTAGTGCTCATTTTTCGTATGGTATTGCTGACAATTTG---GATGATCCAAAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTATATACAGCTGGCGAAATCGTGGAACTGCTGGAGTTTGTTGCTCCAAAAATGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------AsnIleIleAsnIle------GluIleProSerThrSerValTh
                                                                                                                                                                                                                                                                                                       TAATTTTCAGTTGAATGAAGATGTTATAAGAGTTGCAGCCGGAGCCACGGGTGAAGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γ-----ProLysValAsnIleThrMetAlaProGlnProGluHisAsp--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrlleThrPheTyrGluAspSerGluSerIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----ValAsnMetThrSerMetGluCγs----
                                                                                                                                                                                                                                                                                                                                                                                                                          -GlySerAspValHisValGluLeuAsnVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --GlyLeuProThrLeuLeuSer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GACAC 1755
                                                                                                                                                                                                                         2101
                                                                                                                                                                                                                                                                 531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1416
                                                                                                                                                                                                                                                                                                                                                 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-651-651-5 (1-546) x US-10-321-802-23 (1-2700)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Glycine US-10-321-802-23
                                       S
                                                                                                                     á
                                                                                                                                                               В
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Phopholipid:diacylglycerol Acetyltransferases
FILE REFERENCE: BB1486 US NA
CURRENT APPLICATION NUMBER: US/10/321,802
CURRENT FILING DATE: 2002-12-17
NUMBER OF SEQ ID NOS: 36
SOFTWARE: Microsoft Office 97
SEQ ID NO 23
LENGTH: 2700
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              163 LysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      948 ATTGGTTATGAAGAAAAACTATGTACATGGCTGCATATGATTGGAGAATAGCATTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     846 CCACCAGGCATAAGAGTTAGGCCTGTCTGGACTTGTAGCTGCTGATTACTTTGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   786 TATAAAAGACCTTCATGCTGGGTGGATCACATGTCACTGGACAATGAAACAGGATTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83 LeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64 TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThr---ThrLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro
        ACCTTGCAACATGTAATGAAGATGACCCGTACTTGGGACTCAACAATGTCAATGATACCA 1406
                                                                                                                                                                                                GlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSer
                                                                                                                                                                                                                                                                                  ---LeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeu
                                                                                                                                                                                                                                                                                                                              :::|||::::::|||:::
CTACATTTTATGAAATGGGTTGAA------GCACCAGCTCCAATGGGTGGTGGGGGA 1178
                                                                                                                                                                                                                                                                                                                                                                 ArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyr----
                                                                                                                                                                                                                                                                                                                                                                                                           GCTACTAATGGTGGAAATAAGGCAGTTATTATTCCACATTCAATGGGGGTCTTGTACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                               LysLeuArgGlyGly---ProSerIleValPheAlaHisSerMetGlyAsnAsnValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATACTTC------GTTTGGGCAGTCCTAATTGCTAACTTGGCACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTTTTGTGCCCGGGATTGTCACTGGGGGGGCTTGAACTGTGGGAGGGTCACCTGTGTGCT
                                                                                                                                                                                                                                                GGACCAGATTGGTGCTCCAAATATATAAAAGGCAGTTGTAAACATTGGTGGACCATTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACACTGAGGTGAGGGATCAAACACTAAGTCGGATAAAAAGCAACATAGAACTTATGGTT
                                                                                                                         GluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSer--------
                                                                                                                                                                 GGTGTTCCCAAGGCTATAGCAGGGCTATTCTCAGCTGAGGCCAGGGATATTGCTGTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.14e-22
283.50
36.94%
23.38%
9.56%
                                                                                     ĠĊĊĀĠĠACGATAGCTCCAGGATŤŤŤTTAGATAACGATCTGTTTCGCATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---AGGAAACGCTTGTGGGGGTGCTTTTGGAGAAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
                                              --LeuTrpLeuMetProPheSerLysAsnCys 280
```

1067

201

1295

1238

236

1007

122

102 785 82 737

```
RESULT 11

US-10-321-802-27

Sequence 27, Application US/10321802

Publication No. US2003020053A1

GENERAL INFORMATION:

APPLICANT: Butler, Karlene H.

APPLICANT: Cahoon, Edgar B.

APPLICANT: Cahoon, Rebecca E.

APPLICANT: Famodu, Omolayo O.

APPLICANT: Hall, Sarah E.

APPLICANT: Hall, Sarah E.

FILE REFERENCE: BB1486 US NA

CURRENT APPLICATION NUMBER: US/10/321,802

CURRENT FILING DATE: 2002-12-17

NUMBER OF SEQ ID NOS: 36

SOFTWARE: Microsoft Office 97

SEQ ID NO 27

LENGTH: 2030

TYPE: DNA

ORGANISM: Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1635 GTTGCAAATACCACCTGTCGTGATGTGTGGACTGAATACCATGAAATGGGGATTTGAGGGA 1694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1983 TTTGAAATTGACACCACGCAAGATGGTGGA-----AGTGATGAAGATAGTTGTCTGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2097 TGTGCTAAAGGCTGGCGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1575 GAGGCACACTCCTCTAAGATTGAGATGGCTGACTTTCGGGGTGCCATCAAGGGTCGCAGT 1634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433 ThrAspileIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   353 AlaArgGluLeuAlaAsp-------GlyThrLeuPheLysAlaIleGlu 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTGTTGCTCCA-----AAGATGATGGCTCGTGGTAGTGCTCATTTCTCTTATGAAATT 1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGAGAGCAGTTGCTGAACATAAAGTTTACACAGCTGGCTCTATCGTAGAACTCCTTCAA 1754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuValAsnMetThrSerMetGlu-CysGlyLeuProThrLeu--LeuSerPheThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTATCACCCTAGCCAGAGGAAGCATAGCAGTGACTATACTCAGTTAACAGACCAAGAG 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrp--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGAĞĞAĞGAĞATAČTATATĞĞ-------ĞĞTĞĞTCTTĞATTĞĞTCACCAĞAAĞAA 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
:::||| :::||| :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGAGTCTACACTGTTGATGGGGATGAGACTGTGCCAGTTCTAAGTTCAGGCTACATG 2096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---CysLysAsnTrpLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrp---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIle 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGACAATTTGGATGACCCTAAATATAATCACTACAAGTATTGGTCAAACCCCTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACAAATCAAACAAATGTTGTCAACTATGGAAGAATGATATCATTTGGCAGAGATGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----ProThrAsnIleIleAsn------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTGANAGATCTTATATTTACAAGTTAACT-----CCCTTTGCCGAGTGTTACATTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHis-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----AspAspProValPheAsnProLeuThrProTrpGluArgPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TheGluIleProSer----ThrSerValThrGluThrAla 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ProlleLysAsnValPheCysIleTyrGlyAlaHisLeuLys 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores: Pred. No.:
                                                   밁
                                                                                       S
                                                                                                                                        맑
                                                                                                                                                                               á
                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-651-651-5 (1-546) x US-10-321-802-27 (1-2030)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-321-802-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164
           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56 AlaTrpSerIleLeuAspCys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLys 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLys 163
        ValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIle
                                                                                                                                                                                                                                                                                                                                                                                                    CCTGATTGGTGTGCAAAGCACATCAAAGCTGTAGCAAACATTGGTGGGCCTTTCTTAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATTTTATGAAGTGGGTAGAA------GCACCTTCTCCCATGGGTGGTGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyr-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTGAGACCCGTGATCAAACATTGAGCAGAATAAAGAGTAACATTGAGCTCTTGGTAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHis 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCTGGGAGGGCCACCACTGCGCCGAGGGGCTCTTCCGGAAGCGCCTCTGGGGGCGGCACA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAspTyrSerLysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArg 55
                                                     ATTTGGGGAGGTTTGGATTGGTCTCCAGAAGATGGTTTTGAGTGTAAATCCAAGAAGCGG
                                                                                                                                                                                                                                                                    GlyThrAla---ArgLeuLeuSerAsnSerPhe----
                                                                                                                                                                                                                                                                                                               GTTCCAAAGGCTGTTGCTGGGCTTTTCTCATCTGAAGCCAAAGATGTTGCTGTTGCTAGA 726
                                                                                                                                                                                                                                                                                                                                                           SerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTAATGGTGGAAATAGGGCGGTGGTGATCCCACATTCCATGGGAGTTCTCTATTTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuArgGlyGly---ProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATATGAAGAAAAGAACATGTACATGGCTGCTTATGATTGGAGGTTATCATTCCAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrlleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPhe 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGAATAAGAGTTAGGCCAGTCACAGGCCTTGTCGCAGCTGACTATTTTGTCCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGly 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----rgcrggattgaacatatgtcattggacaacgaaactggattagataaa 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCGGCGACGTGTACAAGAGGCCTTTA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGCTGCACGCCAAGCACCCCGTCATCTTCGTGCCGGGGATCGTCACCGGAGGGCTCGAG 138
                                                                                                                                           ATGCGAATGACCCGTACATGGGATTCAACAATGTCAATGCTCCCTAAAGGTGGTGAGACT
                                                                                                                                                                                 -----AlaSerSerLeuTrpLeuMetProPheSerLyBABnCyBLyBGlyABpABnThr
                                                                                                                                                                                                                              GCTATTGCACCAGAAATGCTGGACTCAGATTTTCTTGGACTTCAGACCTTGCGCCACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.45e-22
281.00
33.74%
22.84%
9.48%
                                                                                              -SerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GTTTGGGCAGTCCTGATTGCCAATTTAGCTCGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2030
132
63
245
138
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----Pro
                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83
             320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                             846
                                                                                                                                                                                        285
                                                                                                                                                                                                                                  786
                                                                                                                                                                                                                                                                           267
                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                          906
```

S 밁 á

밁

밁

δ

밁 Ś Ś

밁 á 밁 á 밁 á 밁 δ 밁 á 밁 á 밁 ş 밁 Ś

```
RESULT 12
US-10-321-802-17
                                                                                                                                                                                                                                                        Sequence 17, Application US/10321802
Publication No. US20030200563A1
GENERAL INFORMATION:
              SOFTWARE: Microsoft Office 97
SEQ ID NO 17
                                                  APPLICANT: Butler, Karlene H.
APPLICANT: Cahoon, Edgar B.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Famodu, Omolayo O.
APPLICANT: Hall, Sarah E.
TITLE OF INVENTION: Phopholipid:diacylglycerol Acetyltransferases
FILE REFERENCE: BB1486 US NA
CURRENT APPLICATION NUMBER: US/10/321,802
CURRENT FILING DATE: 2002-12-17
NUMBER OF SEQ ID NOS: 36
LENGTH: 2479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1249
                                                                                                                                                                                                                                                                                                                                                                                   1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                                                                                                                                                                                         493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSer 470
;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGCTTCAAATATTGAGCAG------ATAGAATTCCGTGATGCTGTCAAAGGTAAT 107:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTCCTACCGAAAGAGCATATGTCTATAAATTATCC-----CCACAGGCAGAGTGCTAT 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGGTGGAATA---ÄÄĞGCÄGTTTCAĞÄCTÄCAAAGCTTTCACCGCAGGCTCTATCATA 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspGlyThrLeuPheLysAlaIleGluAspTyrAspPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATCTTGCCCATTCGAATACATCATGCCGGGATGTCTGGACAGAGTATCAGGAATTAGGG 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProThrLeuSerPheThrAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATCCAGAGCCTGTGAACTTTGGAAGAATGGTATCTTTTGGAAAAGATGTAGCGGAAGCT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AAGACCAATGATTCAGAGGTTTCTAAGGATGTTCATGGGGAACCTGTCGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACGTGAGAGAGTATAGTCÀTTCTCCACCCTCGAATCTCCTCGAAGGCAGGGGCACACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetAlaProGlnProGluHisAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATATGTGTGCCAAAGCATGGCGTGGAAAAACTCGCTTCAACCCTTCTGGCAGCAAGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Trp------CysLysAsnTrpLeuGly-------ProLysValAsnIleThr 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGAAAGGTGGTGTTTACATGTCGAATGGTGACGAGACTGTTCCAGTTCTTAGTTCAGGG 1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATACCCTTTCAGATAGATGCCTCAGCTGAGGGT------GGGGATGAGAATAGCTGC 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrp 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGGAGACAAAACTACCAGATGCGCCTGAAATGGAAATATTTTCGATGTATGGAGTAGGC 1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAATTGCTGATAACTTGGATĠATCCAAAATATGGCCACTACAAGTATTGGTCAAACCCC 1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATCTTTTTAACTTTGCTCCCAAGGATGATGCAGCGTGGTAGTGTTCATTTTTCATAT 1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----AspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHis---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----IleAsnIle-----
                                                                                                                                                                                                                                                                                                                                                                                   AGTGGTGCCCACGTTGATATTATGGGGAACTTTGCTTTAATGGAGGATATTATC 1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrVal 450
                                                                                                                                                                                                                                                                                                                                                                                                                       SerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIle 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---AspAspProValPheAsnProLeuThrProTrpGluArgPro 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ProlleLysAsnValPheCysIleTyrGlyAlaHis 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----Gly 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----ArgGluLeuAla 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                 ð
                                                                                                                                                    닭
                                                                                                                                                                                            8
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x US-10-321-802-17 (1-2479)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-321-802-17
                                                                                밁
                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Parthenium argentatum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No
  1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        459
                                                                                                                                                                                                                                                                                                                              912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          681
                                          294
                                                                                                                                                                                                                                                                                     251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTACAAATGGTGGGAAAAAGGCGGTTATTATCCCACATTCAATGGGTGTTATCTACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysLeuArgGlyGly---ProSerIleValPheAlaHisSerMetGlyAsnAsnValPhe 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeu 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTGGATATGAAGAGAAAAATATGTATATGGCTGCATATGACTGGAGACTCTCGTTTCAA 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu 142
|||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCCAGGTATACGGGTCAGACCCGTTAGTGGACTTGTAGCTGCTGACTACTTTGCCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGTTTGTGCCCCGGGATTGTGACCGGTGGGGCTTGAGCTGTGGGAAGGGCATCAGTGT---
                                    AlaAlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyr 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyr------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACACGGAGGTAAGAGACCAAACATTGAGTCGGATAAAGAGCAATATAGAACTGATGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThr----ThrLysLeu
                                                                                                                                                                 ATAATGAGA---ATGAGCCGCACATGGGATTCAACCATGTCTATGATACCA-----
                                                                                                                                                                                                                                                                                                                                                                                                        GGACCAGATTGGTGTGCTAAACATATCAAAGCGGTAATGAACATTGGTGGACCATTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCATTTCATGAAATGGGTCGAA-----
  AGTCCAAGTAAGAGAAAACATGGAAAAAATGACACTGAATCTTCTACCCAAAAATGAGTCT 119:
                                                                                                                                                                                                   ThrAlaArqLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLys 278
                                                                                                                                                                                                                                                                                                                            GGTGTCCCAAAAGCTGTAGCCGGGCTTTTCTCTGCAGAAGCTAAAGATATTGCATCAGTC
                                                                                                                                                                                                                                                                                                                                                                  GlySerValGluAlaIleLysSerThrLeuSerGlyValThr-----------
                                                                                                                                                                                                                                                                                                                                                                                                                                          ---LeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeu
                                                                                                                  AsnCysLysGlyAspAsnThr-------SerTrpThrHisPheSerGlyGly 293
                                                                                                                                                                                                                                             AGGGCTCTTGCACCAGGTATGTTGGACTCGGATTTATTTCAGATTCAGACGTTACAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----atgéategettettaegaagacetetéégetegtacétttegtgaegtt
                                                                                AAAGGCGGGGACACCATTTGGGGCGGTCTTGATTGGTCTCCCGAAGACGGGTAT 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.65e-22
280.00
35.60%
21.98%
9.44%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                     -----pheGlyLeuProValSerGluGly 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCACCAGCTCCAATGGGTGGTGGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2479
129
80
252
126
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            578
                                                                                                                                                                     1079
                                                                                                                                                                                                                                                   1031
                                                                                                                                                                                                                                                                                                                                                                                                                911
                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              407
```

δ 밁 δ 문 δ 밁 á 밁 ş 밁 Ś 밁 Ś 밁 á 밁 á 밁

δ 밁 δ 밁

밁 Ś 8 á 밁

971 250 217 800

Wed

```
RESULT 13
US-10-437-963-38278/c
US-10-437-963-38278, Application US/10437963
; Sequence 38278, Application US/10437963
; Publication No. US20040123343A1
; GENERAL INFORMATION:
APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
; APPLICANT: Kovalic, David K.
; APPLICANT: Cao, Yongwei
; APPLICANT: Boukharov, Andrey A.
; APPLICANT: Boukharov, Andrey A.
; APPLICANT: Barbazuk, Brad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1254
                                                                                                                                                                                                                                2010 TTCGAGTGGTCCGAGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1770 GCAGGCTACATGTGTGCAÄÄÄGGTTGGCGTGGGAAAACTAGATTCAATCCTTCGGGAATC 1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1671 TTCCAAATT------GACACGTCGGCAAAAGATAAAAACGAGGATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1551 TTAGAGACAAAGCTACCAAACGCTCCAGACATGGAGATCTATTCAATGTATGGAGTTGGC 1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314
                                                                                                                                                                                                                                                                 525 TyrGluAspSerGluSerIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTGGTGGAATCAAGGCTGTTGCAGAGTACAAGGTATATACAGCTGGCGAAATTGTGGAT 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCAAGTGAAGAATGTGAAGTAACACACGCAAATTATGGAAGGATAGTATCATTTTGGGAGA 1253
                                                                                                                                                                                                                                                                                                                                                                                                                                             IleThrMetAlaProGlnProGluHisAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGTAGCAGAGGCACCATCTTCAGAGATCGAGAGGATAGAATTTAGGGGTGCTGTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerGlyTrpProThrAsnIleIleAsn-----
                                                                                                                                                                                                                                                                                                      AAGGTTGCAGCCGGAGCCACGGGTGAAGAACTGGGAGGTGATCAGGTGTACACAGGTATA 2009
                                                                                                                                                                                                                                                                                                                                                                          ACGCAAAGCGGGGCTCACGTGGATATTATGGGTAATTTCCAGTTAATTGAAGATGTTATA
                                                                                                                                                                                                                                                                                                                                                                                                         ---GlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAspIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerTrp-----CysLysAsnTrpLeuGly------ProLysValAsn 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGTTTAAAAGATGGA----GTTTATACGGTTGACGGAGATGAAACAGTACCAGCATTAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCCAACTGAAAGAGCATATGTTTATAAACTCACACCTGCAGCAGAATGCTACATACCA 1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLysThrGluValGlyTyrTyrPhe-----AlaProSerGlyLysProTyrProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATAGCTGACAATTTG---GÁTGÁCCCAAAATACTCACATTACAAGTATTGGTCTAACCCA 1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuLysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCTGGAGTTTGTTGCTCCAAAAATGATGGAACGCGGCAGTGCTCATTTTTCATATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GlyLeuProThrLeuLeuSer-----PheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTAACAATGTTGCAAACAATACATGCCGGGCCGTGTGGACCGAATACCATGACATGGGA 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---ValAsnMetThrSerMetGluCys------------
                                                                                                                                                                                                                                                                                                                                     AlaAsnMetThrLysAlaProArgValLys--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----IleGluIleProSerThrSerValThrGluThrAlaLeu-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ProlleLysAsnValPheCysIleTyrGlyAlaHis 410
                                                                                                                                                                                                                                2030
                                                                                                                                                                                                                                                                   531
                                                                                                                                                                                                                                                                                                                                         TyrIleThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                               1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                       밁
                                                                                                                        δ
                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-437-963-38278
                                                                                                                                                                                                                                                                                                        1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1897
```

```
US-09-651-651-5 (1-546) x US-10-437-963-38278 (1-2395)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Li, Ping
TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53221)B
CURRENT FILLYS DATE: 2003-05-14
NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 38278
LENGTH: 2395
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Clone ID: PAT_MRT4530_4192C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Oryza sativa FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2017 GTGTTCGTCCCGGGCATCGTCACCGGCGCCTCGAGCTCTGGGAGGGGGACCACTGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1840 TTATGCTGGGTTGAACATATGTCACTGGACAATGAAACTGGATTAGATAAACCAGGAATA 178:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             147 AlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGlu 166
                                                                                                                                                                                                                                                             206 GluTrpLeuArgLeuGluIleAlaProLysHisTyr------LeuLysTrp 220
                                               241 AlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAla
                                                                                                                                                                                                                                                                                                                                                          GlyProSer---IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeu 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 126
                                                                                                                                                                                                                                                                                                                                                                                                                                CGTGATCAAACTTTGAGCAGGATAAAAAGTAACATTGAACTCCTGGTAGCAACTAATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAAAGACCATGTACATGGCTGCATATGATTGGAGGTTATCTTTCCAGAACACTGAGGTT 1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGGGGCTCTTCCGCAAGCGCCTCTGGGGCGCCACGTTCGGCGACGTGTACAAGAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCys---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGly 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGlu
...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGAGTTCGGCCAGTCACAGGCCTAGTGGCAGCCAGACTATTTTGTTCCTGGGTATTTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheAsnProLeuAspLeuValTrpLeuAsp-----ThrThrLysLeuLeuSerAlaVal 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ProTyrThrProLeuAsp
TGTGCAAAGCACATCAAATCTGTAATGAATATTGGCGGACCTTTCTTAGGAGTTCCTAAG
                                                                                                                                                        LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu
                                                                                                                                                                                                                AAGTGGGTTGAG-----GCTCCTCCCATGGGTGGTGGTGGTCCAAATTGG
                                                                                                                                                                                                                                                                                                                        GGAAATAGGGTGGTGGTGATCCCACATTCTATGGGGGGTTCTCTATTTTCTGCATTTTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCGTTGCTTTGAT---GTTTTTGTTGATGGTTACAAACTACAATGATATATGGGCCT 184:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.34e-21
274.00
34.15%
22.76%
9.24%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       - ĠTTTGGGCTGTTTTGATTGCAAATTTAGCTCGTATTGGATATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2395
140
70
258
148
26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                   1448
                                                                                                                                                                                                                                                                                                                              1499
                                                                                                                                                                                                                                                                                                                                                                                                                                      1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1958
                                                                                                                                                             240
```

٠,

र्

```
1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   976
 527
                                                                        507
                                                                                                                                                                                     458
                                                                                                                                                                                                                          478
                                                                                                                                                                                                                                                             518
                                                                                                                                                                                                                                                                                                                                       578
                                                                                                                                                                                                                                                                                                                                                                          445
                                                                                                                                                                                                                                                                                                                                                                                                                 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                  425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 857
                                                                                                             398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGAAGTCCTAGACTCTGACTTCCTTGGACTTCAGACCTTACGCCATTTGATGCGTATG 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nIleIleAsnIleGluIleProSerThrSerValThrGlu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HisCysAspGluGluGlu-TyrGlnSerLysTyrSerGly-----TrpProThrAs 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATTTGGATTGGTCTCCAGAAGATGGTTTTGAGTGTAAAGCTAAGAATCAGAAAATC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCCATTATAGATCTTCTTCGTTTGTTGCTCCAAGGATGATGCAGCGTGGAAGTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gMetLeuHisGlnLeuLysLysLeu-----------TyrHi 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       uAla-----AspGlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysAr 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAAAGGCAATAATATTGCCCACTCAAATACATCATGCCGGGATATATGGACAGAGTAT 917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rSerMetGluCysGlyLeuProThrLeuLeu-----SerPheThrAlaArgGluLe 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGTTAAGTATGGAAGAATTGTCTCTTTCGGTAAAGATGTAGCAGAGGCTCCATCTTCA 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----SerTrpThrHisPheSerGlyGlyAlaAlaLys---LysAspLysArgValTyr 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCCGCACATGGGATTCAACAATGTCAATGATTCCTAAGGGCGGTGACACCATTTGGGGA 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---ArgLeuLeuSerAsnSerPhe---
                                                                                                                                                                                                                                                                                                                                                                      rArgSerGlyThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValPr 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                oTyrProAspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSe 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rGlyAlaHisLeuLysThrGluValGlyTyrTyrPhe-----AlaProSerGlyLysPr 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ĠTCAAATĊĊĊTTGGAAACAAAATTACCAAATGCAĊĊŤGAAATGGAAATATTTTCAATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTTTCGTATGGGATTGCTGACAACTTGGATGATCCAAAGTACGGCCACTACAAATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----AATGATTCTGAGGTTTCTAAGGATGCTAACGGGAAGAATGAGGTTCATCCAGAA 1097
                                                                                                               AGGCAGGGGCACCCAGAGTGGTGCGCACGTT---
                                                                                                                                                                                                                        oLysValAsnIleThrMetAlaProGlnProGluHisAsp------
                                                                                                                                                                                                                                                               AGTTCTTÄGTGCAGGATATATGTGCGCAAAAAGGCTGGCGAGGAAAAACACGCTTCAACCC
                                                                                                                                                                                                                                                                                                oTyrHisSerLeuSerTrp-----CysLysAsnTrpLeuGly--------
                                                                                                                                                                                                                                                                                                                                     GGATGAGAATAGCTGTCTGAAAĠĠĆGGCGTTTACCTGTCTAATĠĠŤĠĀŤĠĀĠĀĊĊĠŦĀĊĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAGTTGGCATTCCGACGGAGAGAGCATATGTCTATAAATTAGCCCCACAAGCAGAGTG
pSerGluSerIleProGlyLysArgThrAlaValTrpGluLeu 541
                                                                      rAspilelleAlaAsnMetThrLysAlaProArgValLysTyrileThrPheTyrGluAs 527
                                                                                                                                                                                     TTCTGGCAGCAAGACCTACGTCAGAGAATACAGCCATTCTCCACCCTCAAATCTCCTCGA
                                     -GATATCATGGGGAATTTTGCTTTAATCGAGGATATTATCAGGATTGCTGCTGGGGCAAC
                                                                                                                                            --GlySerAspValHisValGluLeuAsnValAspHisGluHisGlySe 507
                                                                                                                                                                                                                                                                                                                                                                                                                 ATACCTTTTCAGATAGACGCTTCAGCTGAGGGT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----ThrAlaLeuValAsnMetTh 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspAspProValPheAsnProLeuThrProTr 395
                                                                                                                                                                                                                                                                                                                                                                                                                 798
                                                                                                                                                                                       399
                                                                                                                                                                                                                                                                 459
                                                                                                                                                                                                                                                                                                      478
                                                                                                                                                                                                                                                                                                                                         519
                                                                                                                                                                                                                                                                                                                                                                                                                 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     678
                                                                                                                                                                                                                            491
                                                                                                               368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                          Ś
                                                                                                                                              δ
                                                                                                                                                                                       밁
                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x US-10-425-115-55049 (1-2700)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION: Clone ID: US-10-425-115-55049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-425-115-55049
   ઈ
                                        밁
                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 55049, Application US/10425115
Publication No. US20040214272A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             308 TGGTGAAGAGCTTGGCGGTGACCAGATGTATTCATGGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   621 GAGGGGCTCTTCCGCAAGCGGCTATGGGGCGCACATTTGGTGACGTATACAAGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561
                                          978
                                                                                                                                                172 HisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer---Ile 190
                                                                                                                                                                                                                                                                                                      132
                                                                                                                                                                                                                                                                                                                                           756
                                                                                                                                                                                                                                                                                                                                                                                112
                                                                                                                                                                                                                                                                                                                                                                                                                     696 CATATGTCATTGGÁCAATGAAACTGGATTAGACAAACCTGGAATAAGGGTCAGGCCGGTC
                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                   798
   211 GluIleAlaProLysHisTyr----
                                                                             191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCys---
                                                                                                                                                                                                                                                                                                                                           ACAGGCCTGGTTGCAGCAGACTATTTTGTCCCTGGATATTTT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArgProAsp 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLys 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCTTCGTCCCGGGGATCGTCACCGGGGGCCTGGAGTTATGGGAGGGGCACCACTGCGCC 620
                                                                                                                                                                                                                          AlavalProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPhe 171
                                                                                                                                                                                                                                                                                                                                                                          SerGlyLeuSerAlalleThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThr 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTA-----TGCTGGGTCGAA 695
                                                                                                                                                                                                                                                                 GTTTGGGCTGTCTTAATTGCCAATTTAGCACGTATTGGATATGAAGAAAAAGACCATGTAC
                                                                  ATGGCTGCATATGATTGGAGGTTATCTTTCCAGAACACTGAGGTCCGTGATCAAACTTTG
                                                                                                                                                                                                                                                                                                  ValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleVal 151
                                        GTGATCCCACACTCCATGGGGGTCCTCTATTTTTTGCATTTTATGAAAATGGGTCGAA--- 1034
                                                                                                                AGCAGAATAAAGAGCAACATTGAACTCATAGTAGCAACAAATGGTGGAAATAGGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.48e-21
272.50
33.11%
21.75%
9.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MRT4577_150201C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ProTyrThrProLeuAspPheAsnPro 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and Other Molecules Associated With
     ---LeuLysTrpLeuAspGlnHisIle 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2700
132
69
262
144
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266
```

62

680

밁

S 밁 ঠ 밁 S

δ

δ 밁 δ 문 Ś 밁 र् 밁 ঠ 밁 5 밁 á 밁 ş 밁

210

977

917

797

á 밁 δ 밁 Ś

밁

밁 á 밁 Ś 밁 ð 밁

```
1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1149
                                                                              2016
                                                                                                                                                                                                                                                                                                                                                                                   1857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1269
                                                                                                                                                                               1956 GATGGTGATGAAACTGTTCCAGTTCTTAGTGCGGGCTACATGTGTGCAAAAGGATGGCGT 2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1617 TACAAAGTTTACACTGCTAGTTCTGTTATAGACCTTCTTCATTTTGTTGCTCCAAGGATG
                                                                                                                                                                                                                                                                                   1905 GCTGAAGGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1035 -----GCACCTCCTCCCATGGGGGGTGGCGGTGGTCCAGACTGGTGTGAGAAGCATATT
                                                                                                                             477
                                                                                                                                                                                                              459 ThrGlyAspGluThrValProTyrHisSerLeuSerTrp-----CysLysAsnTrpLeu 476
                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                376 LeuHisGlnLeuLysLysLeuTyrHis------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            314 SerGly-----TrpProThrAsnIleIleAsnIleGluIleProSerThrSerValThr 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      274 MetProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGly 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 226 HisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThr 245
                               492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGAGATCTGGACAGAGTATCACGAATTAGGATGGGGTGGAATAAAGGCAGTCGCAGAC 1616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSer--- 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGATTGGTCTCCAGAAGATGGCATTGAATGTAAAGCTAAGAAGCAAAAGCCAATGAT 1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyr 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAACAATTTCAATGATTCCTAAAGGTGGTGATACAATTTGG------GGAAAT 1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTGATTTCCTTGGGCTTCAAACTTTGCGCCATTTGATGCGTATGACCCGAACATGGGAT 1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnSerPhe-----AlaSerSerLeuTrpLeu 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTCTCATCTGAAGCCAAAGATGTTGCCGTTGCTAGAGCTATCGCTCCTGATGTCTTGGAC 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAla---ArgLeuLeuSer 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAAGCTGTAATGAATATTGGAGGACCTTTCTTAGGAGTTCCTAAGGCTGTTGCTGGCCTT 1148
                                                                                                                                                                                                                                                                                                                                                                                 TTGGCCCCACAGGCAGAATGTTAT------ATACCTTTCCGAATTGACACCTCG 1904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATGGAAGGCTGGTATCTTTTGGTAAAGATGTAGCAGAAGCACCTTCTTCAGAGAGTGAG 1496
                                                                           GGCAAAACTCGTTTCAACCCTGCCGGCAGCAAGACTTACGTGAGAGAATACAGCCATTCA 2075
                                                                                                                                                                                                                                                                                                                            ThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                ---AlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGlu 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGAAATATTTTCCATGTACGGAGTAGGCATTCCTACTGAAAGGGCATATGTCTATAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPhe----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACCAACATTACAAATATTGGTCAAACCCCTTGGAAACGAAGTTACCGAATGCTCCTGAC 1796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheAsnProLeuThrProTrpGluArgPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGCAGCGTGGAAATGTTCACTTTTCATATGGAATTGCTGATAACTTGGATGATCCGAAA 1736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGATAGAATTTCGTGATGCTGATAAAGGTAATAATATCGCCCATTCAAATACGTCATGC 1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---PheThrAlaArgGluLeuAlaAspGlyThrLeu----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGGGGTTTCTAAGGATAGCAATGGGGGAAATATCGAGGTTCAACCTGAACCTATTAAC 1436
                                                                                                                                                                                                                                                                             -----GGGGAGGAAAATAGCTGCTTGAAAGGGGGTGTTTACTTAGCC 1955
                                                                                                                           ProLysValAsnIleThrMetAlaProGlnProGluHisAsp
---GlySerAspValHisValGluLeuAsn 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---PheLysAlaIleGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----AspAspProVal 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -AspSerLysArgMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----Prolle 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         375
                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 35, Application US/10321802

Publication No. US20030200563A1

GENERAL INFORMATION:
APPLICANT: Butler, Karlene H.
APPLICANT: Cahoon, Edgar B.
APPLICANT: Cahoon, Edgar B.
APPLICANT: Famedu, Omolayo O.
APPLICANT: Hall, Sarah E.
TITLE OF INVENTION: Phopholipid:diacylglycerol Acetyltransferases
FILE REFERENCE: Balt466 US NA
CURRENT APPLICATION NUMBER: US/10/321,802

CURRENT FILING DATE: 2002-12-17

NUMBER OF SEQ ID NOS: 36
SOFTWARE: Microsoft Office 97

SEQ ID NO 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; LENGTH: 4093
; TYPE: DNA
; ORGANISM: Glycine m
US-10-321-802-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 15
US-10-321-802-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                       Ş
                                                                                                밁
                                                                                                                                                  á
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-5 (1-546) x US-10-321-802-35 (1-4093)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2076 CCACCCTCTACTCCTGGAAGGCAGGGGCACCCAGAGCGGTGCACATGTTGATATAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              501 ValAspHisGluHisGlySerAspIleIle------AlaAsn-MetThrLy 515
     945
                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                             783
                                                                                                                                                                                                                                                                                                                                                         103 HisproGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspPro
                                                                                                                                                                                                                                                                                                                                                                                                              723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               615 GTTTTTGTGCCCGGGATTGTCACTGGGGGGGCTTGAACTGTGGGAGGGTCACCTGTGTGCT
                                                 163 LysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeu 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64 TyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThr---ThrLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                          83 LeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAsp 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44 IleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysPro 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :::||||||:::
TTGTAACCTATGGGAAGTT 2274
       AACACTGAGGTGAGGGATCAAACACTAAGTCGGATAAAAAGCAACATAGAACTTATGGTT 1004
                                                                                                      ATTGGTTATGAAGAAAAACTATGTACATGGCTGCATATGATTGGAGAATAGCATTTCAG 944
                                                                                                                                        PheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThr 162
                                                                                                                                                                                                                                                                                                             CCACCAGGGATAAGAGTTAGGCCTGTCTCTGGACTTGTAGCTGCTGATTACTTTGCTGCA 842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGGGTTGTTC-----AGGAAACGCTTATGGGGTGGTACCTTCGGAGAAGTT
                                                                                                                                                                                                       GGATACTTT------GTATGGGCAGTGCTAATTGCTAACTTGGCACGC 884
                                                                                                                                                                                                                                                        GlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGlu 142
                                                                                                                                                                                                                                                                                                                                                                                                              TATAAAAGACCTTCATGCTGGGTGGATCACATGTCACTGGACAATGAAACAGGATTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gThrAlaValTrpGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTGGTGGCGATCAGGTTTATTCAGATATATTCAAGTGGTCAGAGAAAATCAAATTGAAA 2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sAlaProArgValLysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysAr 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGAACTTTGCTCTAATTGAGGACGTCATCAGAATAGCTGCTGGGGCAACCGGTGAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.29e-20
269.00
36.20%
22.70%
9.07%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4093
116
69
219
108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2195
                                                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 722
```

밁

Ś

밁

á

유

음 성 음 성

Ş

밁

중 유 성

밁

밁

중 유

5 5 5 5 5

Ś

유

유

& & &

B

밁

Qy Db

8 8 8 8

8 8 8 8

음 성

ð

용 **성** 용

Ş

음 성 음

8 8

469 uSerTrpCysLysAsnTrpLeuGly 477	밁	ş
	AGGCTTCATGTGTGCTAAAGGTTGGCGCGGA	uSerTrpCysLysAsnTrp :::

Search completed: November 22, 2005, 14:08:37 Job time : 866 secs

THIS PAGE BLANK (USPTO)

```
Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -MODEL-frame+ p21.model -DEV=xlh
-MODEL-frame+ p21.model -DEV=xlh
-Q=/cgn2 1/USPTO spool/US09651651/runat_18112005_101832_20333/app_guery.fasta_1.711
-Q=/cgn2 1/USPTO spool/US09651651/runat_18112005_101832_20333/app_guery.fasta_1.711
-DB=-Published Applications NA New -QFMT=fastap -SUFFIX=rnpbn -NINMATCH=0.1
-LOOPEXT=0 -UNITS=bite -STRAT=1 -END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DCCALIGN=200 -THR SCORE=pct -THR MAX=100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXIEN=2000000000 -USER=US09651651 @GGN 1 1 117 @Frunat 18112005 101832_20333
-NCPU=6 -ICPU=3 -NO MMAP -LARGEQUERY -NEG SCORES=0 -WAIT -DSPBLOCK=100
-LONGLOG -DEV TIMEOŪT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPOP=6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                  Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing:
                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being pu and is derived by analysis of the total score distribution.
                                             104.5
85.5
85.5
83.5
83.5
80.5
                                                                                                                                                                                                            Score
                          0.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                             Published_Applications_NA_New:*

1: /cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*

2: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*

3: /cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*

4: /cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*

5: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*

6: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*

7: /cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*

9: /cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*

9: /cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*

10: /cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Xgapop 10.0 , x
Ygapop 10.0 , x
Fgapop 6.0 , F
Delop 6.0 , F
                                                                                                                                                                                                            Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MGANSKSVTASFTVIAVFFL......DSESIPGKRTAVWELDKSGY 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          November 22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3196817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-651-651-5
                                                                                                                                                                                                                                  Query
    3.5
2.9
2.8
2.8
2.7
2.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                   2806
2906
26000
7512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seqs, 65720914
                                                                                                                                                                 4333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2005, 11:10:45 ; Search time 131 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                               BB
US-10-131-826A-233

US-10-131-826A-201

US-10-131-826A-367

US-10-949-720-991

US-10-647-956A-7

US-11-147-725-3

US-11-147-725-3

US-11-147-725-11
                                                                                                                                                                                                          IJ
                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (without alignments)
547.842 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6393634
                        Sequence 233, App
Sequence 201, App
Sequence 367, App
Sequence 391, App
Sequence 7, Appli
Sequence 3, Appli
Sequence 1, Appli
                                                                                                                                                                                                            Description
  Sequence
                                                                                                                                                                                                                                                                                                                                                 printed,
```

	0 0	o	a	o o
444 544 544 544		331 331 331 331 331	16 118 119 220 221 232	9 10 11 12 13 14
69.5 69.5 5	9,0,11,	72.5 72.5 72.5 72.5 72.7 72.7	7 7.	78.5 78 77.5 77.5 77.5 76.5
	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. ທ່ານ ທ່ານ ທ່ານ ທ່າ	
2477 2531 2916 3033 3033	3552 1968 1968 2623 1989 2737 2737 4372 4372 1482	1989 2030 3003 3003 3003 3327 1869 1875 2361	1856 1299 2745 2835 2853 2449 2498 340000	1023 2739 9719 48763 1287 1689 1824
99191	. 9 1 1 7 1 1 .	111779917	7 1 1 9 9 9 1 9	97719
US-10-131-826A-331 US-11-038-284-37 US-10-131-826A-69 US-11-038-284-14 US-11-038-284-41	-11-021-441-43 -10-131-826A-16 -10-131-826A-63 -11-021-441-12 -11-021-31-826A-55 -10-131-826A-53 -10-949-720-393 -11-012-762-13	-11-021-441-1 -10-652-893-3 -11-038-284-3 -11-038-284-3 -11-031-244-3 -11-021-441-4 -11-021-441-3 -10-131-826A-		-10-467-962B-7 -10-518-599-3 -11-042-988-10 -10-663-794-3 -11-074-176-24 -11-021-441-8 -11-085-864-1
1,007	equence 13, equence 53, equence 55, equence 53, equence 53, equence 393, equence 393	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sequence 143, App Sequence 119, App Sequence 111, App Sequence 117, App Sequence 117, App Sequence 47, Appl Sequence 483, Appl Sequence 3, Appl	equence 78, Apequence 3, Apequence 10, Apequence 10, Apequence 3, Apequence 247, equence 8, Apequence 17, Apequence 18, Appquence 18, Appquenc

ALIGNMENTS

US-10-131-826A-233

```
APPLICANT: Tumas, Daniel
APPLICANT: Watenabe, Colin K
APPLICANT: Watenabe, Colin K
APPLICANT: Watenabe, Colin K
APPLICANT: Wood, William
APPLICANT: Wood, William
APPLICANT: Zhang, Zemin
APPLICANT: Zhang, Zemin
APPLICANT: Zhang, Zemin
APPLICANTON: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: NUMBER: US/10/131,826A
CURRENT FILLING DATE: 2002-04-49
PRIOR FILLING DATE: 1997-06-18
PRIOR FILLING DATE: 1997-08-26
PRIOR FILLING DATE: 1997-08-26
PRIOR FILLING DATE: 1997-08-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 233, Application US/10131826A Publication No. US20050245730A1
                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Baker, Kevin P. APPLICANT: Beresini, Maur APPLICANT: DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                          Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                         Stewart, Timothy A. Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                     Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                               Smith, Victoria
```

APPLICATION NUMBER: 60/059115

FILING DATE:

1997-09-17

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                 밁
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                               á
                                                                 밁
                                                                                              S
                                                                                                                                                              á
                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x US-10-131-826A-233 (1-4333)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Homo Sapien
US-10-131-826A-233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/059588
PRIOR FILING DATE: 1997-09-19
Remaining Prior Application data removed - NUMBER OF SEQ ID NOS: 550
SEQ ID NO 233
LENGTH: 4333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1997-09-17
APPLICATION NUMBER: 60/059122
FILING DATE: 1997-09-17
APPLICATION NUMBER: 60/059184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/059263
FILING DATE: 1997-09-18
APPLICATION NUMBER: 60/059352
FILING DATE: 1997-09-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1997-09-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1997-09-17
APPLICATION NUMBER: 60/059117
                                                                                                                                   470
                                                                                                                                                                                                 410
                                                                                                                                                                                                                                 390
                                                                                                                                                                                                                                                                                                                                  347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                440
                                                                                                  425
                                                                                                                                                                  405
                                                                                                                                                                                                                                                                  383 GATGACTCA--
                                                                                                                                                                                                                                                                                                                                                               351 PheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIle----GluAspTyrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                 331 ThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSer 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311 SerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIleProSerThrSerVal 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155 CTCTGGGCTCTGCTTCATGCAGTCCTTG-------
                                                                                                                                                                                                                                AsnPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGluGluTyrGln
::: ||||||
                                GluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleThr 459
                                                                                                ProTyr-----ProAspAsnTrpIleIleThrAspIleIleTyrGlu-----Thr 439
                                                                                                                                   CTTATT-----CACCTGAAGAAT----
                                                                                                                                                                CysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLys
                                                                                                                                                                                                 CAGCCTGCCTGGGTTGGGGCTTCCTGGGGGCCAGTGTTGCAGGCTGAAGTGGGGGATGTCATT
                                                                                                                                                                                                                                                                                              ProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPhe 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGAACTATGCTCCCAAGGGAAGAATGTCATCACGAACCAGCCTCTGGACAGTGACATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGATGGAGCCACT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPhe
GAAGGTTCCCTATACCCA-
                                                                   CCCTATACCATCCACCCTCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                  GTGGCTTCCAGCTTCTTAAAGTCTGACAAGAACCGGATAGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104.50
34.17%
21.58%
3.52%
                                                                                                                                                                                                                                LeuThrProTrpGluArgProProIleLysAsnValPhe
                                                                                                                                                                                                                                                                                                                                  -GGAACCTACAAGAAGACCATCTATAAAGAATACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - CGAGTCTACTACCTGGGCATCCGGGATGTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  See File Wrapper or PALM
   GATGGCTCCTCTGGGCCACTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4333
60
35
80
103
17
                                                                                                                                                                                                                                                                  -TACACAGATGAAGTGGCC
                                                                                                                                   TTTGCCACT----CGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -TEGCCTCAACTG
                                                                                                                                   499
                                                                                                                                                                  424
                                                                                                                                                                                                    469
                                                                                                                                                                                                                                 404
                                                                                                                                                                                                                                                                409
                                                                                                                                                                                                                                                                                                                                  382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   244
                                                                   544
                                                                                                                                                                                                                                                                                                                                                                                                    346
```

```
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P333071C128

CURRENT APPLICATION NUMBER: US/10/131,826A

CURRENT FILING DATE: 2002-04-24

PRIOR APPLICATION NUMBER: 60/049911

PRIOR FILING DATE: 1997-06-18

PRIOR PRIOR APPLICATION NUMBER: 60/05974

PRIOR APPLICATION NUMBER: 60/059113

PRIOR APPLICATION NUMBER: 60/059113

PRIOR APPLICATION NUMBER: 60/059115

PRIOR FILING DATE: 1997-09-17

PRIOR APPLICATION NUMBER: 60/059115

PRIOR APPLICATION NUMBER: 60/059117

PRIOR APPLICATION NUMBER: 60/059117

PRIOR APPLICATION NUMBER: 60/059117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-131-826A-201
                                                                                                                                                                                                                                                                         PRIOR FILING DATE: 1997-09-17
PRIOR APPLICATION NUMBER: 60/059122
PRIOR FILING DATE: 1997-09-17
PRIOR APPLICATION NUMBER: 60/059184
PRIOR FILING DATE: 1997-09-17
PRIOR APPLICATION NUMBER: 60/059263
PRIOR APPLICATION NUMBER: 60/059352
PRIOR APPLICATION NUMBER: 60/059352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 201, Application I
Publication No. US20050245'
GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
                                                                                                                               Remaining Prior Application data removed
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 201
LENGTH: 2806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                       PRIOR FILING DATE: 1997-09-19
                                                                                                                                                                                                                                      PRIOR FILING DATE: 1997-09-19
PRIOR APPLICATION NUMBER: 60/059588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
NAME/KEY: unsure
LOCATION: 2157
OTHER INFORMATION: unknown base
                                                                                      TYPE: DNA
ORGANISM: Homo Sapien
                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              460 GlyAspGluThrValPro-----TyrHisSerLeuSerTrp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      758 AGAGGAGCCCTGGATGGGAACTCCCCTCCTCAACGCCAGGATGTAGACCATGAT 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGCACCCACCGATGCTGACCCAGCGTGCCTCACCTGGATCTACCATTCTCATGTAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCACGAGACATTGCAACTGGCCTAATTGGGCCTCTCATCACC-----TGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tumas, Daniel
Watanabe, Colin K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wood,William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/10131826A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US20050245730A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----LeuGlyProLysValAsnIleThrMetAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----СүвLувАвпТгр------
                                                                                                                                                                                               See File Wrapper or PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
```

Wed

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-131-826A-201
 Ş
                                       밁
                                                                          ð
                                                                                                             밁
                                                                                                                                              á
                                                                                                                                                                                       밁
                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-5 (1-546) x US-10-131-826A-201 (1-2806)
                                                                                                                                                                                                                                                                                                                                                                                                                   1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1140
                                                                                                                 1356
                                                                                                                                                                                         1344
                                                                                                                                                                                                                                                                 1302
                                                                                                                                                                                                                                                                                                                                         1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          103 HisProGluCysLysSerArgProAsp-SerGlyLeuSerAlaIleThrGluLeuAspPr
     340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCCCCGCAATGTCATGTTTGTCTTTCTTTCAAGGGGAAACTTTTGACTACATTGGCAGC 102:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAsp
                                                                                                                                                                                                                                                                   GAAACATCTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgLeuGluIleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyr 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerīleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeu 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCATTTGTGGAGCTGGGACAGGTGGCCTTAAGAACTTCATTAGAGCTTT---GGATGCACA 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyPro 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCGAGGATGGTCTACGATATGGAGAAGGGCAAGTTTCCCCGTGCAGTTAGAGAATGTTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCTTTGTCACCCAGCTGGCTGCTGAAGCTTTGCAAAAGGCACCTGATGTGACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oGlyTyrileThrGlyProLeuSerThrValTrpLysGluTrpLeuLys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGTCTGATTACAATGTGTGG------AGCATGCTAAAGCCTATAAATACAACTGGG
                                                                                                                                                                                           TCCAT----
                                                                                                                                                                                                                            hrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGluGluG 308
                                                                                                                                                                                                                                                                                                                                         CACCATCTTCCCTGCAGCGATTTCT---
                                                                                                                                                                                                                                                                                                                                                                            yValThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAl 268
                                                                                                                                                                                                                                                                                                                                                                                                                                               PheAlaValGlyAlaProLeuLeuGlySer-ValGluAlaIleLysSerThrLeuSerGl 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGATCCTGTTTCTCAGAAAAATGAGTCTGTACGGAACCAGGTGGAGGATCTCCTGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCTGGATAGTCGTTCCTTTTTCTGGAATGTGGCCCCAGGGGCTGAAAGCGCAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ACATTAAAGCCTGACGACAGGGTTGTGGTTG------CTGCCACC
erMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyT 360
                                                                                                                                                  luTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIleProSer- 327
                                          GGCTGAGCCCTGAAGAGGACCTGAACTTTGTAACAGACACTGCC
                                                                                                                 ATTACCAGAGTATTTACGAC-----ACTGCTGAGAACATTAATGTGAGCTATCCCGAAT 1409
                                                                                                                                                                                                                                                                                                  aSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGly-AspAsnThrSerTrpT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -------ThrSerValThrGluThrAlaLeuValAsnMetThrS 340
                                                                                                                                                                                                                                                                                                                                                                                                                   -GTGGTGCTGGTGTCCCTGTCATCCTCAGGAGGCCAAATCAGTCCCAGCCTCTCC 1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  606
85.50
32.67*
22.08*
2.88*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrAspTrpArgLeuSer-----ProThrLysLeuGluGluArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Trp-Cys-ValGluPheGlyIleGluAjaAsnAlaIleValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                           -----TCGAGCTC 130:
                                                                                                                                                                                                                                                                   -CGTTGTTCTGGCTGACCACTCTGGTGCCT 1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2806
100
48
157
149
21
                                                                                                                                                                                             ---AACAAAT 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138
                                                                      APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330RLC128
CURRENT APPLICATION NUMBER: US/10/131,826A
CURRENT FILING DATE: 2002-04-24
PRIOR APPLICATION NUMBER: 60/049911
PRIOR FILING DATE: 1997-06-18
PRIOR APPLICATION NUMBER: 60/056974
PRIOR APPLICATION NUMBER: 60/059113
PRIOR FILING DATE: 1997-09-17
PRIOR APPLICATION NUMBER: 60/059115
PRIOR APPLICATION NUMBER: 60/059115
PRIOR APPLICATION NUMBER: 60/059117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-131-826A-367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 367, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                         PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                     FILING DATE: 1997-09-17
APPLICATION NUMBER: 60/059122
FILING DATE: 1997-09-17
APPLICATION NUMBER: 60/059184
FILING DATE: 1997-09-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1455 AGGCCCTGGCAGATGTGGCCACGTGCTGGGACGTGCTCTGTATGAGCTTGCAGGAGGAA
       APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1806 ACTCATGGGTCCAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1611 TCCTCAGGCAG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    379 euLysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360 hrLeuPheLysAlaIleGluAspTyrAspProAspSer----LysArgMetLeuHisGlnL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        399 roIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       euSerTrpCysLysAsnTrpLeuGlγPro 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACACCACTTATGTTGTACAGTATGCCTTGGCAAATTTGACTGGCACAGTGGTCAACCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyA 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCTTCAACATTACATCGCTGTCTCCAGCCCC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGAGAGCAGTGCCAGGATCCAAGTAAAGTCCCAAGTGAAAACAAGGATCTGTATGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   snAlaGlyProIleThrGlyAspGluThrValPro------TyrHisSerL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                  Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                         Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/10131826A
o. US20050245730A1
         NUMBER: 60/059263
                                                                                                                                                                                                                                                                                                                                                                                                                   e, Colin K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----CTGATTAAAGCCAACAACTCATGGTTCCAGTCTA 1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCT 1825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GACCTAAGGTCCTACTTGGGTGACGGGC
                                                                                                                                                                                                                                                                                                                                                                     AND NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----ACCA
```

1805

469

1685

1649

416

434

1574 379 1514

399

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; PRIOR FILING DATE: 1997-09-18
; PRIOR APPLICATION NUMBER: 60/059352
; PRIOR APPLICATION NUMBER: 60/059588
; PRIOR APPLICATION NUMBER: 60/059588
; PRIOR FILING DATE: 1997-09-19
; Remaining Prior Application data removed - See File Wrapper or PALM.
; NUMBER OF SEQ ID NOS: 550
; SEQ ID NO 367
; LENGTH: 2906
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-131-826A-367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                      á
                                                                                                                                                           Ś
                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
             S
                                                   맑
                                                                                                                              밁
                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-651-651-5 (1-546) x US-10-131-826A-367 (1-2906)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1607
                                                       1979 ------
                                                                                                                              1919
                                                                                                                                                                                                                                                                                                                                                                                                                                   1718 TGGAACTGTAACTGTGACATACTGTGGCTCAGCTGGTGGATAAAAGACATGGCCCCCTCG 1777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1709 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1667 ---CTCTTCACTCCCTTGCATCATCTAGAGCGG---ATACATTTACAT------ 1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1547 CAAAAACTGTGGATGATACAGTCCCAGATTCAAGTGATTGAACGGAATGCCTTTGACAAC 1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1490 TCTGGGAATCATTTATCTGCCATCAGGCCTGGCTCTTTCCAGGGT---TTGATGCACCTT 1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1430 TGCAACCTTCGGGAAATCCCTAACCTCACACCGCTCATAAAACTAGATGAGCTGGATCTT 1489
                                                                                                                                                                                                         1889 CCTGCA-----
                                                                                                                                                                                                                                                                                1838 GAGCTCGACCAGAAT-----TACTTCACATGCTATGCTCCGGTGATTGTGGAGCCC 1888
                                                                                                                                                                                                                                                                                                                                                            1778 AACACAGCTTGTTGTGCCCGGTGTAACACTCCTCCCAATCTAAAGGGGAGGTACATTGGA 1837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137
296 LysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGly 315
                                                                                                                                                               260 AlaArgLeuLeu------SerAsnSerPheAlaSerSerLeuTrpLeuMetPro
                                                                                                                                                                                                                                          240 GluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThr 259
                                                                                                                                                                                                                                                                                                       220 TrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerVal 239
                                                                                                                                                                                                                                                                                                                                                                                                216 His----TyrLeuLys 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       197 GlyAsn---AsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLys 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 TrpLysGluTrp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 106 CysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAsp------ 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAsp 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMet 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeu 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCAGTCACTAGTGGAGATCAACCTGGCACACAATAATCTAACATTACTGCCTCATGAC 1666
                                                                                  PheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAla 295
                                                                                                                              GCAGCTGAGCTGAAATGTCGGGCCTCCACATCCCTGACATCTGTATCTTGGATTACTCCA 1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            714
85.00
31.21%
20.80%
2.87%
                                                     -----AATGGAACAGTCATGACACAT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CACAACCCT 1717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----ProGlyTyrIleThrGlyProLeuSerThrVal 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                       -----GACCTCAATGTCACTGAAGGCATG 1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2906
88
44
126
166
22
                                                     -GGGCCTAC 2008
                                                                                                                                                                   275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   136
Query Match:
 2.82%
```

														_		$\overline{}$	-	
Alignm Pred. Score: Percen Best L Query	RESU US 1	Дb	δ	Дb	δ	ДD	Ş	Db	Ş	P &	Db	Qγ	B &	? {	ş 8	Db	Ş	дb
Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity Query Match:	SSULT 4 S-10-949-720-391 Sequence 391, Applic Publication No. US20 GENERAL INFORMATION: Krasnope ApplicaNT: Krasnope ApplicaNT: Kertesz ApplicaNT: Kertesz ApplicaNT: Reddy, ApplicaNT: Reference: VASCURRENT APPLICATION: FILE REFERENCE: VASCURRENT FILING DATE: PRIOR APPLICATION N PRIOR FILING DATE: NUMBER OF SEQ ID NG SOFTWARE: FastSEQ fSEQ ID NO 391 LENGTH: 26000 TYPE: DNA ORGANISM: Homo Sap: 10-949-720-391	2491	427	2431	412	2392	395	2332	385	369 2272	2212	362	2156	٥ (د د	329	2036	316	2009
res: lrity: nilarity:	-720-391 tion No. US20050249 , INFORMATION: ANT: Krasnoperov, V. ANT: Krasnoperov, V. ANT: Krasnoperov, V. ANT: Kertesz, Nath ANT: Kertesz, Nath ANT: Gill, Parkash OF INVENTION: POLYP OF INVENTION: POLYP OF INVENTION NUMBER: EFERBENCE: VASG-POLYP T FILING DATE: 200 APPLICATION NUMBER: FILING DATE: 2003-0 APPLICATION NUMBER: FILING DATE: 2004-0 EFILING DATE: 2004-0 APPLICATION NUMBER: FILING DATE: 2004-	CGCCCCAAC	ProAspAsn	TGCAGTGATO	LysThrGluValGly	AATCATCATTGG		CCCAGTGACT	AspAspPro\	AspProAsp	TGAGGCACGO		ACTCCTTT-			GGTACGTTA	TrpProThr <i>P</i> 	AAAGTGCGGATAGCTGTG-
2.26e+04 83.50 34.07% 23.08% 2.82%	US/1094 736Al 736Al ralery ey alic andra andra cognussi 002 US 60/ 3-12 US 60/ 3-12 US 60/ 3-12 US 60/ US 60/ US 60/ 3-12 US 60/	2499	429		TyrTyrPhe	76G	TrpGluArgProPro	::: rgatataaacagtgg	.spAspProValPheAsnProLeuThrPro	SerLysArgi DACCTCTCTCACACC	3ACCACAGATAACAA		T-CTCTTACTTTTC	hat out out or photo	SerValThro	VATTTCACAAATGTAJ	TrpProThrAsnIleIleAsnIleGluIleProSerThr	TAGCTGTG
Length: Matches: Conservative: Mismatches: Indels:	9720 COMPOUNDS FOR INHIB S AND TUMOR GROWTH 0/949,720 454,432 454,300 800,350			CAAGATGAGGAAGCA			leLysAsnValPhe	 GATCCCAGGAATTGA	ThrPro	SerLyBArgMetLeuHiBGlnLeu- TCTCACACCACAGAGCACAAGGTCG	TGTGGGTCCCACTCC		AACCGTCACAGTAGA	יים ווים דיים ביו היים	GluThrAlaLeuVal ::: ::://	ACTGTGCAAGATACA	GluIleProSerThr	
26000 84 40 132 108	BITING			TGCAGTGATGCTGGTCATTTTCTACAAGATGAGGAAGCAGCACCATCGGCAAAACCATCA	AlaproSerGlyLysproTyr	GTGTTTTGTGGCCATCACACTCATGGC		CCAGTGACTGATATAAAACAGTGGGATCCCAGGAATTGATGAGGGTCATGAAGACTACCAA		AspProAspSerLysArgMetLeuH1sGlnLeuLysLysLeuTyrH1s	GTGGT	-PheLysAlaIleGluAspTy ::: :	CAG	Alabanci vThri.eu	ServalThrGluThrAlaLeuValAemetThrSerMetGluCy8ServalThrGluThrAlaLeuValAemetThrSerMetGluCy8	GGTACGTTAAATTTCACAAATGTAACTGTGCAAGATACAGGCATGTACACATGTATGGTG		CTCAGTGAT
				CA 2490	yr 426	GC 2430	eu 411	AA 2391	394	18 384 	N	yr 368 ::	N	3	ув 343 СТ 2155	N	328	AT 2035

В

4969

```
US-09-651-651-5 (1-546) x US-10-949-720-391 (1-26000)
                                                                                                                                                                                                                                                                                                                    4712
                                                                                                                                                                                                                                                                                                                                                                                                           4652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4268
                                               4874
                                                                                                                                      4829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             289
                                                                                                                                                                                                                                                                       417
                                                                                                                                                                                                                                                                                                                                                              397
    468
                                                                                         448
                                                                                                                                                                                428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTACCAGCAGCCCCCTTTCTCAGTCCCTCTCACTTTATAGGATTCACCCCATGCAGCCC 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACGGGCAGGTGAGAGCTGCACCCAGG-----AGCTGGAGCTCTGGAGGGAAA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnVal 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThriysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPhe---GluThr 180
                                                                                                                                                                                                                                                                                                                                                            gProProIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTy 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                   uTyrHis-----AspAspProValPheAsnProLeuThrPro---Trp---GluAr 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTGAGCGGCCTGGATGAGGAACAGCACAGCGTGCGCACCTACGAAGTGTGACGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sPheSerGly---GlyAlaAlaLysLysAspLysArgValTyrHis---CysAspGluGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTCCCTGGCGGCTCCCC--AGCCCCCTTGCTGACCTCCTTCTCTGCACAGTGGGAGGA 4444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGATGACAGCAGCCCCAGCAGTGTCGTCTGAGCCCCTTCTCAGAGGCGCCCCTCCTCGCA 4321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaIleLysSerThrLeuSerGlyValThrPheGlyLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLysTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACAAAATTGGAAACTGCTGATCTGAAGTGG------GTGACATTCCCTCAGGTG 4156
                                                                                                                                                                                                                                                                                                                 CCCCTACATCAAGGTACCTGGGTGCCCCCAGGGCTCA---GCCACAGCCAAGGTGGGATT 4768
                                                                                                                                                                                                                                                                                                                                                                                                        CTTCTACTATGAGAGCGÁTGCGGACACGGCCACGCCCTCÁCGCCAGCCTGGATGGÁGAA 4711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            eLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLe 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPh 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               eGluIleProSerThrSerValThrGluThr---AlaLeuValAsnMetThrSerMetGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGTGCCCCGGGCCAGGCCCACTGGCTTCGCACAGGTTGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uGluTyrGlnSerLys--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerLeuTrpLeuMetProPheSerLysAsnCys-LysGlyAspAsnThrSerTrpThrHi
rLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMet---AlaProGl 487
                                                                                                                                      GCGCTGGGGGCTG---
                                                                                                                                                                                                                          CCAGCCAGCAGGCCCGTGGCCTGGAGGGCAGCCGATGTAGTTGCGAGGCCTCTGGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----GTCCCACGGGGGGGGGCGCCACGTGTACGCCACGCTGCGCTTCACCATGCTCGA
                                                                                       YThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSe
                                                                                                                                                                              pAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGl 448
                                                                                                                                                                                                                                                                     rTyrPheAla-----ProSerGlyLysPro-----
                                                 GGGTGATCTTCTGGGCGGAGGAGCAGAATATACGGGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -ProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSer 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGCCGCCTGCTTTCTGTGTG-----CCACTCCTCTCCCCTGTCCCC 4267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              · CTGTCCCTG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           - CTGAGGGAGGGAGGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----TyrSerGlyTrpProThrAsnIleIleAsnIl 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - CCTCGGGCTGGGCGCTCCTGCAAGGAGACCTTCACCGT 4651
                                                                                                                                        ----GAAGCAGGAGGCTTAGGTCTGGGGAGGGAAGG
                                                                                                                                                                                                                                                                       -----TyrProAs 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4204
                                                                                                                                                                                                                             4828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4225
                                                                                              468
                                                                                                                                      4873
                                                 4910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
US-10-647-956A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
       밁
                                          δ
                                                                                              밁
                                                                                                                            S
                                                                                                                                                                                В
                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                         뭥
                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-651-651-5 (1-546) x US-10-647-956A-7 (1-7512)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-647-956A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Efrench-Constant, Richard
APPLICANT: Bowen, David
APPLICANT: Rocheleau, Thomas
APPLICANT: Waterfield, Nicholas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 7, Application US/10647956A Publication No. US20050251878A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/647,956A

CURRENT FILING DATE: 2003-08-26

PRIOR APPLICATION NUMBER: CUBRENT APPLICATION NUMBER: US/09/817,514

PRIOR FILING DATE: CURRENT FILING DATE: 2000-03-26

PRIOR APPLICATION NUMBER: US 60/191806

PRIOR FILING DATE: 2000-03-24

NUMBER OF SEQ ID NOS: 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: DNA SEQUENCES FROM PHOTORHABDUS LUMINESCENS FILE REFERENCE: 61645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 7512
TYPE: DNA
ORGANISM: Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4911 -GCTGCCTGGCCCGGCCCCAGGGAGGCCCAAGGGTCAGGCTTCTCCTCCAGTCACCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4970, ACCACCCTAC 4979
    2686 GGGATAGATCATAACTATGCTGCCTGGCAAGCTGCGGCGGCTGCGCTGATGGCTGATCAT 2745
                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487 nProGluHis 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGlu--- 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGlu 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LysserArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr 126
                                                                                                                                                                                                                                                                                                                                                                GCTATGAATAAGGAGGAATCTCTCCTACAAATGGCAGCTAATCAGGTGGAGAAGGATCTA 2574
                                                                                                                                                                                                                                                                                                                    TyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSer 189
                                                                                              ATGTCTTCGGCCTTGGCGGTTTCTCCACTGGATCTGGCAGGGATGATGGCCCCTGAAATAT 2685
                                                                                                                                                                                                                        IleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTCCTTGATATTGGCGGCGTTGAAAGACGGAGCCTTGACAGTTACCGATGTAGCACAA 2514
                                            ---LeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySer---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.44e+03
82.00
33.62%
19.42%
2.77%
                                                                                                                                        -ACAAAACTGACCAGTTGGACACAGATTGACGCT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                             -----GluArgAspLeu 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGGTTAATGGCTTGGGGCAACAT 2454
                                                                                                                                                                                       ----ATTĊTĠCAATĠĞTTACAG 2625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7512
67
49
113
116
```

ð

밁 S 밁 5

S 밁 Ş 밁 á 밁 र् 밁 δ 밁 ક 밁 Ś 밁

238

2607

밁 δ 밁 Ś 밁 8 밁 Ś

Ś 밁 Ś

밁

á 밁 S

밁

Wed

```
APPLICANT: Dunn-Coleman, Nigel
APPLICANT: Goedegebuur, Frits
APPLICANT: Goedegebuur, Frits
APPLICANT: Yao, Jian
TITLE OF INVENTION: BGL5 Beta-Glucosidase and
TITLE OF INVENTION: Encoding the Same
FILE REFERENCE: GC697
CURRENT FILING DATE: 2005-06-07
PRIOR APPLICATION NUMBER: US 10/026,140
PRIOR APPLICATION NUMBER: US 10/026,140
PRIOR FILING DATE: 2001-12-18
NUMBER OF SEQ ID NOS: 3
SOFTWARE: FASESEQ for Windows Version 4.0
SEQ ID NO

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-11-147-725-3
; Sequence 3, Application US/11147725
; Publication No. US20050244878A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                    Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                Pred. No.:
                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3181 GATGCTTTCAAAACTTATTTGACCAGCTTTGAGCAGGTAGCAAATCTGAAAGTAATTAGT 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2806 ATTAATGCTGTTGTCGATAGTGCTGCTGGAGTACGTGATCGTAACGGTTTATATACCTAT 2865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2746 GCTAATCAGGCACAGAAAAAACTGGATGAGACGTTCAGTAAGGCATTATGTAACTATTAT 2805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuTyrHisAspAsp 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTTACCACGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHis---GlnLeuLysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCACTGACTGGGAACGTTACAATAAACGTTACAGTACTTGGGCTGGTGTCTCTGAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisCysAspGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGTATTCAACTGTACGTTAAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGCGCTG-----TTGCAATCCATCAACCAGAGCCAGCTAAATGCGGATACGGTGGAA 3180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCTATTATCCAGAAAACTATGTTGATCCCACTCAGCGCATTGGGCAAAACCAAAATGATG 3126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGlyAlaAlaLyaLyaAapLya------ArgValTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TrpLeuMetProPheSerLysAsp(CysLysGlyAspAsnThrSerTrpThrHisPheSer 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCTGATTGATAATCAGGTTTCTGCCGATGTGATCACTTCACGTATTGCAGAAGCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValGluAlaIleLysSerThrLeuSerGlyVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --- CGGGCTTTAAACCGAGATGAAGGTCAGCTTGCATCGGACGTTAGTACCCGTCAGTTC
                       743
80.50
35.85%
20.75%
2.72%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3255
                                                                  Length:
Matches:
Conservative:
Mismatches:
                    Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nucleic
                  1455
77
56
155
83
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----ThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-651-651-5 (1-546) x US-11-147-725-3 (1-1455)
  맑
                                 δ
                                                                                          밁
                                                                                                                                             S
                                                                                                                                                                                              밁
                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                            밁
  1285
                                                                                                                                                                                                                                                                                                1114
                                                                                                 1225
                                                                                                                                                                                                                                                                                                                                                                                               1054 AGCGGCCTCGCCTGGCTGCGCTCCTGCCCGGACATGTTCCGGAAGCATCTCGCCCGGGTG
                                                                                                                                                                                                                                               427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGAGGTCCAGCTGGACTTTGAGCGGTATGCGAGGTTG------
  GGGTACTTTGCGTGGGCGTTGCTCGAT-----
                                                                                                 TTTGACTCGCACTTGGACTCGATTTCCAAGGCCATTACCCAGGACGGCGTCGTCAAG 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThralaargGluLeuAlaaspGlyThrLeuPheLysAlaIleGluAspTyrAspProasp 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaVal 231
                                                                                                                                                                                                                                                                                                TACGGCCTGTACGGCAAGCCC------ATCTACATCACCGAGAACGGATGCCCGTGC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                             Leu---ThrProTrpGluArg-----ProProIle-----LysAsnValPheCysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCGCGCGCCACCTA---GACGGTCCCGTC--------CCCGAGACGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACTATGAGCCCTGGGACAGCAATGAGCCTCGGGACAAGGAGGCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACAGCAGGGACTTTCGCCCCTCGCAAAAGGGCCAGATCGGCATCTCGCTCAACGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TrpLeuMetPropheSerLy8AsnCysLy8GlyAsp------AsnThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGAGCCGTGGCTCGCTGGAAAGGCCCAGATCATGAGCCATGCCGGCGCCGTCGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCAGCAACGCCCCGGGCAGGAGCAGCATTAACAAGCACTCCACCGAGGGCAACACTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCTTTGAACGTTTTGGGGACCGAGTC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrAspTrpArgLeuSerProThrLysLeuGluGluArgAsp------LeuTyrPhe 171
                                              GlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCys 472
                                                                                                                                                ---AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAsp
                                                                                                                                                                                                CCTGGAGAGGAGAACATGACGTGCGAGGAGGCCGTCAACGACCCCTTCCGCATCCGSTAC 1224
                                                                                                                                                                                                                                          ProAspAsnTrpIleIleThr-----
                                                                                                                                                                                                                                                                                                                                              TyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyr 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATCTCGGCGCCATCCATGAGCACCAGGAGAATAAGGACGGCAGCCCCGTTGGCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGCCATCCTCAATGCCGGAGAGACCGACTTCTACGGCATGAATTACTACACATCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrAlaLeuValAsnMetThrSerMetGlu---CysGlyLeuProThrLeuLeuSerPhe 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGCGACGGATGGAATTTCACATTGGCTGGTTTGCCAATCCCATCTTCTTGAAGAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GAWCCCTGGATT---CAGGCCATCTATGGATAT---GCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACCACTGGGATCTG---CCTCAGGCGCTTCACGATCGCTATGGAGGCTGGCTCAACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----TleProSerThrSerValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CAGAACTGGATCACCATCAAC
----AACTTGGAATGGTCA 1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     462
                                                                                                                                                                                                                                                                                                                                                                                                 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                  406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 211
                                                                                                                                                     452
                                                                                                                                                                                                                                                    433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  993
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: DNA; ORGANISM: Trichoderma US-11-147-725-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-11-147-725-1
             S
                                              밁
                                                                       ঠ
                                                                                                         망
                                                                                                                                          S
                                                                                                                                                                             밁
                                                                                                                                                                                                       5
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-651-651-5 (1-546) x US-11-147-725-1 (1-1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 3
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/11147725 Publication No. US20050244878A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: GC697
CURRENT APPLICATION NUMBER: US/11/147,725
CURRENT FILING DATE: 2005-06-07
PRIOR APPLICATION NUMBER: US 10/026,140
PRIOR FILING DATE: 2001-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Yao, Jian
TITLE OF INVENTION: BGL5 Beta-Glucosidase and
TITLE OF INVENTION: Encoding the Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Dunn-Coleman, Nigel APPLICANT: Goedegebuur, Frits APPLICANT: Ward, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                             572
                                                                                                                                                                                                                                                                                                                                                                                                              192
                                                                                                                                                                                                                                                                                                                                                                                                                                             485
                 307
                                                 788
                                                                                                                728
                                                                                                                                               272
                                                                                                                                                                               899
                                                                                                                                                                                                              252
                                                                                                                                                                                                                                              809
                                                                                                                                                                                                                                                                             232
                                                                                                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                                                                            524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGGCTAC---GGACCCAGATTCGGCGTCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysAsnTrpLeuGlyProLysValAsnIleThr 483
                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAGAGGTCCAGCTGGACTTTGAGCGGTATGCGAGGTTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleVal 191
GluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGlu-----
                                                                                                                                                                                                              GlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeu
                                                                                                                                                                                                                                                                           GlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPhe 251
                                                                                                                                                                                                                                                                                                                                  IleAlaProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaVal 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACCACTGGGATCTG---CCTCAGGCGCTTCACGATCGCTATGGAGGCTGGCTCAACGTG 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrAspTrpArgLeuSerProThrLysLeuGluGluArgAsp------LeuTyrPhe 171
                                                                                                                                                                               ----CAGGCCATCTATGGATAT---GCCACC
                                                                                                                                                                                                                                                                                                                                                                            TGCTTTGAACGTTTTGGGGACCGAGTC------CAGAACTGGATCACCATCAAC
                                                                                                                                                                                                                                                                                                                                                                                                           PheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGlu 211
                                                 TACTATGAGCCCTGGGACAGCAATGAGCCTCGGGACAAGGAGGCT----
                                                                                                              TACAGCAGGGACTTTCGCCCCCTCGCAAAAGGGCCAGATCGGCATCTCGCTCAACGGCGAC
                                                                                                                                             TrpLeuMetProPheSerLysAsnCysLysGlyAsp------
                                                                                                                                                                                                                                                GGCAGCAACGCCCCGGGCAGGAGCAGCATTAACAAGCACTCCACCGAGGGCAACACTGCC
                                                                              TrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.16e+03
80.50
35.85%
20.75%
2.72%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              reesei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1991
77
56
155
83
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Acids
                                                                                                                787
                                                                                                                                                  286
                                                                                                                                                                                                                                                667
                                                                                                                                                                                                                                                                                                               607
                                                                                                                                                                                 727
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                 Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                              Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
US-10-957-569-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                       TITLE OF INVENTION: PROMOTER, PROMOTER CONTI-
TITLE OF INVENTION: THEREOF
FILE REFERENCE: 2750-1577PUS3
CURRENT APPLICATION NUMBER: US/10/957,569
CURRENT FILING DATE: 2004-09-30
PRIOR APPLICATION NUMBER: US 10/950,321
PRIOR APPLICATION NUMBER: US 10/950,321
PRIOR FILING DATE: 2004-09-23
NUMBER OF SEQ ID NOS: 64
SOFTWARE: Patentin version 3.3
US-09-651-651-5 (1-546)
                                                                                                           Score:
                                                                                                                                                                                   US-10-957-569-11
                                                                                                                                                                                                                                                          SEQ ID NO 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 11, Application US/10957569 Publication No. US20050246785A1
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: COOK, Zhihong et al.
                                                                                                                                                                                             TYPE: DNA
ORGANISM: Arabidopsis thaliana
                                                                                                                            .
No.:
                                                                                                                                                                                                                                       ENGTH: 2310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1055 TATCTCGGCGCCATCCATGAGCACCAGGAGAATAAGGACGGCAGCCCCGTTGGCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1016 TTCGCGCGCCACCTA---GACGGTCCCGTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1388 GATGGCTAC---GGACCCAGATTCGGCGTCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        434 ---AspIleIleTyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAsp 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               352 ThralaargGluLeualaaspGlyThrLeuPheLysAlaIleGluAspTyrAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      956 TTTĠĊĊATCCTCAATGCCGGAGAGACCGACTTCTACĠĠĊATGAATTACTACACATCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            896 TATCCAGAGAGCATGAAGAAGCAGCTGGGCGAGAGGCTTCCAGCCCTCACTCCCGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     836 GAGCGACGGATGGAATTTCACATTGGCTGGTTTGCCAATCCCATCTTCTTGAAGAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrAlaLeuValAsnMetThrSerMetGlu---CysGlyLeuProThrLeuLeuSerPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGTACTTTGCGTGGGCGTTGCTCGAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTGACTCGCACTTGGACTCGATTTCCAAGGCCATTACCCAGGACGGCGTCGTCGTCAAG 1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGGAGAGAGAACATGACGTGCGAGGAGGCCGTCAACGACCCCTTCCGCATCCGSTAC 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Leu---ThrProTrpGluArg-----ProProIle-----LysAsnValPheCysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnPro 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysAsnTrpLeuGlyProLysValAsnIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCys 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProAspAsnTrpIleIleThr ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACGGCCTGTACGGCAAGCCC------ATCTACATCACCGAGAACGGATGCCCGTGC 1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyr 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGGCCTCGCCTGCGCTCCTGCCCGGACATGTTCCGGAAGCATCTCGCCCGGGTG
                                        2.01e+03
79.00
33.82%
20.59%
2.66%
 x US-10-957-569-11 (1-2310)
                                                                                                                                                                                                                                                                                                                                                                                                                            PROMOTER CONTROL ELEMENTS,
                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----IleProSerThrSerValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                483
                                      2310
56
36
100
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----cccgagacggac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTTGGAATGGTCA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                              AND COMBINATIONS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          433
                                                                                                                                                                                                                                                                                                                                                                                                                                AND USES
```

```
APPLICANT: Plesch, Gunnar
APPLICANT: Blau, Astrid
APPLICANT: Blau, Astrid
APPLICANT: Klein, Mathieu
TITLE OF INVENTION: Identification of Herbicidally Active Sub
FILE REFERENCE: 2003
CURRENT APPLICATION NUMBER: US/10/467,962B
CURRENT FILING DATE: 2003-08-14
PRIOR APPLICATION NUMBER: PCT/EP02/01466
PRIOR APPLICATION PCT/EP02/01466
PRIOR APPLICATION PCT/EP02/01466
                                                                                                                                                                                                                                                                                                                                      RESULT 9
US-10-467-962B-78
                                                                                                                                                                                                                                                                     Sequence 78, Application US/10467962B Publication No. US20050246784A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1263
                                                                                                                                                                                                                                                                                                                                                                                                  1794 TCGGAGTTACAGATAGTTAACGCCGTTAGCTTAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1434 TTCAACGAGTCTGACGAGAATCTCCAAGAGTGTCCTGTCTGAAATCCCGCCTGAATCTCAAA 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1614 GCCGAGCCGTGGCCTAAAGTCTCAĞĞATTCĞCTAAAGTTGATCTCACTACTGGAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1314 AACATTAAGTGGATTGATGCTCCAGATTGCTTCTGCTTCCATCTCTGGAACGCTTGGGAA 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1554 GCAGGGATGGTCAACAGAAACATGCTCGGCCGTAAAACCAAATTCGCTTACTTGGCTTTA 1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                     331 ThrGluThrAlaLeuValAsnMetThrSerMetGlu 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ||||
GAGCCAGAAACAGATGAAGTCGTCGTGATAGGGTCCTGTATGACTCCACCAGACTCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaPro-----LeuLeuGlySerVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTTTCAAGCTGCCGGAGATGATCCGCGGTGGGTCTCCGGTGGTTTACGACAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGATGATGCACGATTTCGCGATTACAGAGAACTTCGTCGTCGTACCTGACCAGCAAGTC 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---TyrPheHisLysLeuLysLeuThr----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCCGATTCTCACCGGACGGAACTAAATCACCGGACGTCGAGATTCAGCTTGATCAGCCA 1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TrpArgLeuSerProThrLysLeuGluGluArgAspLeu---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAATCCGGTGAACTCTTCGCTTTAAGCTÁCGÁCGTCGTTTCAAAGCCTTACCTAAAATAC 1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluAlaAsnAlaIleValAlaValProTyrAsp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGGAGAGGAAGACGAAGGATACATCCTCTGTTTCGTTCACGACGAGAAGACATGGAAA 1793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrLeuLysTrpLeuAspGlnHis------IleHisAlaTyrPheAlaValGly 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---PheGluThrAlaLeuLysLeuArgGlyGlyProSerTleValPheAlaHisSerMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGAAACATCTTTACGGCGATAACCGTTACGGAGGAGAGCCTCTGTTTCTCCCCCGGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspGluGluGluTyr---GlnSerLysTyrSerGlyTrpProThrAsnIleIleAsn---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuMetProPheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSer---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCGGTGAATCAACTCGCCGTCCGATCATCTCCAACGAAGATCAACAAGTCAACCTCGAA 1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValSerGluGlyThrAlaArg---LeuLeuSerAsnSerPheAlaSer---SerLeuTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---AACAAGGTCGCAAGATTCGGGATT-----TTAGACAAATACGCCGAAGATTCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ·GluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GlyGlyAlaAlaLysLysAspLysArgValTyrHisCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----IleGluIleProSerThrSerVal 330
                                                                                                                                                                                                                                                                                                                                                                                                             1829
                                                                                                                                                               Substances
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; SEQ ID NO 78
; LENGTH: 1023
; TYPE: DNA
; ORGANISM: Arabidopsis thaliana
; PEATURE:
; MAME/KEY: CDS
; LOCATION: (1)..(1023)
; OTHER INFORMATION: ORF F25L23_24
US-10-467-962B-78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                     δ
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-651-651-5 (1-546) x US-10-467-962B-78 (1-1023)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                밁
                                                                                                                                          밁
                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            349 GAGGATAACTCTAAGAACTACCAACTGTGGCATCGTCGGCGATGGGTTĠĊAGAGAAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144
                                                                                                                                                                                                                                                                                                                     586 TGGAATCAGAGGTATTATGTCATCACCCAATCTCCTTTGTTGGGAGGCCTAGAAGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                             529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164
      303 HisCysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsn
                                                                                                                                                                                    263 LeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGly
                                                                                                                                                                                                                                  646 AGAGAATCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            215 LysHisTyrLeuLysTrp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85
                                                                                          AspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyr
                                                                                                                                                                                                                                                                                                                                                                                                                GATGAGCTCGAT---TACTGTCACGAGCTCCTTGAAGCTGACGTCTTTAACAATTCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGAAACCCTCCTC---TTAAACTCCGGCAACTACACAGTGTGGCATTTCAGGCGCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPhe-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuGluGluArgAspLeuTyrPhe-------HisLysLeuLysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ĠĠŤ-----CCGĂĂŤCCAGTĠĠŤĠCCAATTGCCŤĂĊAAGGAAGAGTTCCGCGAGĀĊŤATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLys
                                                                                                                                                                                                                                                                         LysSerThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                -----LeuAspGlnHisIleHisAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArg-----LeuGluIleAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTACTCGAGGCCCTTAATCACGACTTGTTTGAAGAACTCGAGTTCATCGAACGCATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATTACTTCCGTGCGATTTACTTTTCCGACGAGCGATCTCCTCGCGCACTACGACTCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGTGCCACTGAGCCAACGATTGGAGTGGTCAGACGTGGTCCCATTGACTCAGGACGAT 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrGlyProLeuSer----ThrValTrpLysGluTrpLeuLysTrpCysValGluPhe
                                                     AACGAGAGCTCATGGCGATACCTA--
                                                                                                                                        TTAACCAAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAACATTATCATGCTTGGTCACATAGGCAGTGGACACTACGGGCATTAGGAGGATGGGAA 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78.50
29.73%
19.73%
2.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F25L23_240, Linie 126905
                                                                                                                                                                                                                                                                                                                                                                 TyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
                                                                                                                                                                                                                                  ------Gaagtaagctacacaatcaaagccatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1023
73
37
111
149
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -AlaHisSerMet
                                                     - AAAGCTCTTTAC
                                                                                                                                               --CCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163
                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                  585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
             322
                                                                                                 302
                                                                                                                                               696
                                                                                                                                                                                         282
                                                                                                                                                                                                                                    681
                                                                                                                                                                                                                                                                              262
                                                                                                                                                                                                                                                                                                                          645
                                                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      231
```

ş

밁

밁 á

밁 S 밁 á 밁 Ş 밁 Ś 밁 S В Ş 밁

S 밁 Ś 밁 á 망 Ş 밁 S B Ś

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 10
US-10-518-599-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                         ş
                                                                                                      밁
                                                                                                                              5
                                                                                                                                                          밁
                                                                                                                                                                                  á
                                                                                                                                                                                                                                          Query Match:
DB:
밁
                     Ś
                                                    밁
                                                                                                                                                                                                             US-09-651-651-5 (1-546) x US-10-518-599-3 (1-2739)
                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                             Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                   US-10-518-599-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3, Application US/10518599 Publication No. US20050251873A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn version 3.1 SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: SONN:064US
CURRENT APPLICATION NUMBER: US/10/518,599
CURRENT FILING DATE: 2004-12-17
PRIOR APPLICATION NUMBER: PCT/CA03/00882
PRIOR FILING DATE: 2003-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: PENNINGER, JOSEPH M.
APPLICANT: CRACKOWER, MICHAEL A.
TITLE OF INVENTION: ACE2 ACTIVATION FOR TREATMENT OF HEART, LUNG AND
TITLE OF INVENTION: KIDNEY DISEASE AND HYPERTENSION
                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/389,709
PRIOR FILING DATE: 2002-06-19
NUMBER OF SEQ ID NOS: 24
                                                                                                                                                                                                                                                                                                                                                               LENGTH: 2739
TYPE: DNA
ORGANISM: Mus 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              976
296
                          305
                                                                             285
                                                                                                                                                            203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsn 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTTCCATGGATTCGCTCTGAGCACCCTTTTGGATCTT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | | | | ::: | | | | ::: AAAGACGACAAAGAATCCTGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACTATTGGGCATGGAGGAAGAGCAAGATT 1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGACTAACTTGGCCAATTTGGTGTGTACTATTCTTGGTCGTGTAGATCCTGTAAGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACTGAGACCAACCAACGAGCATAAAGACTCAGTGAGAGCTCTAGCTAATGAAGAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleGluIleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGlu 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProLeuThrProTrpGluArgProProIle 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ATTAGTGATCCAAGTGTTTCCTCAGTCTGTTTGAATGTTCTATCCCGCACAGAT
                      AspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAspIleIleAsnIleGlu 324
                                                                           ThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCys
                                                                                                                                AsnSerPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsn
                                                                                                                                                            AGCCTTGTTGCTGTTACTACTGCTCAGTCCCTCACCGAGGAAAATGCCAAGACATTTTTA
                                                                                                                                                                                    ThrLeuSerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSer
                                                     CTGTCT----
                                                                                                        AACAACTTT---
                                                                                                                                                                                                                                                                                                                                                                  musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAsp
                                                                                                                                                                                                                                                    3.22e+03
78.00
31.02%
18.37%
2.63%
  TATCAAAGTTCACTTGCTTCTTGGAATTATAATACTAACATTACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ThrLeuPheLysAlaIleGluAspTyrAspPro 370
                                                                                                                                                                                                                                                       Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                              Matches:
                                                                                                                                                                                                                                                                                                             Length:
                                                                                                                                                                                                                                          2739
61
42
121
108
12
                                                                                                         - AATCAGGAAGCTGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----CTATGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      753
  343
                                                     295
                                                                              304
                                                                                                                                  284
                                                                                                         289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                            US-11-042-988-10
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                          998
                                                                                                                                                                                                                                                                                                                                                                                                                       457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   393
```

```
APPLICANT: ZHANG, HAILI
APPLICANT: ZHOU, YAN
TITLE OF INVENTION: SINGLE CELL ANALYSIS OF HI
TITLE OF INVENTION: DRUG RESISTANCE
FILE REFERENCE: 62760(71699)
CURRENT APPLICATION NUMBER: US/11/042,988
CURRENT FILING DATE: 2005-01-25
PRIOR APPLICATION NUMBER: 60/540,716
PRIOR FILING DATE: 2004-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 10, Application US/11042988
Publication No. US20050244818A1
GENERAL INFORMATION:
                                                                             NUMBER OF SEQ ID NOS: 16
SOFTWARE: PatentIn Ver.
SEQ ID NO 10
                                                                                                                                                                                                                                                                                                                                          APPLICANT: SILICIANO, ROBERT
APPLICANT: ZHANG, HAILI
APPLICANT: ZHOU, YAN
LENGTH: 9719
TYPE: DNA
ORGANISM: Human immunodeficiency virus type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1055 ACTGATGCAATGATGAATCAGGGCTGGGATGCAGAA 1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    764 AACGACTATGGGGATTATTGGAGAGGGGACTATGAAGCAGAGGGAGCAGATGGCTACAAC 823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      644 GACTACAACTCTAGGCTCTGGGCATGGGAGGGCTGGAGGGCTGAGGTTGGCAAGCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            584 AACCCACAAGAATGCTTATTACTTGAGCCAGGATTGGATGAAATAATGGCGACAAGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    524 AACACAATTCTGAACACCATGAGCACCATTTACAGTACTGGAAAAGTTTGCAACCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          365 IleGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                345 LeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      344 GAAAATGCCCAAAAGATGAGTGAGGCTGCAGCCAAATGGTCTGCCTTTTATGAAGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       325 IleProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGly 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     938 TACATCAGCCCCACTGGATGCCTCCCTGCCCATTTGCTTGGTGATATGTGGGGTAGATTT 997
                                                                                                        PatentIn Ver. 3.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAspValHisValGluLeuAsnValAspHisGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProlleThrGlyAspGluThrValProTyrHisSerLeuSer-----TrpCysLysAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrProAspAsnTrpIleIleThrAspIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGCCGTTGTATGAAGAGTATGTGGTCCTGAAAAACGAGATGGCAAGAGCAAACAATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrProTrpGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGACAAATCTGTACCCT---TTGACTGTTCCCTTTGCACAGAAACCAAACATAGATGTT 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Trp-----LeuGlyProLysValAsnIleThrMetAlaProGlnProGluHisAspGly 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATGAGCATCTTCATGCCTATGTGAGGAGGAAG-----TTGATGGATACCTACCCTTCC 937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATAACCGTAACCAGTTGATTGAAGATGTAGAACGTACCTTCGCAGAGATCAAGCCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---TyrGlyAlaHisLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ArgProProIleLysAsnValPheCysIle-----
                                                                                                                                                                                                                                                                                                                       HIV REPLICATION CAPACITY AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -LysThrGluValGlyTyrTyrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspTyrAspProAspSer 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -SerGlyLysPro 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ------Ile 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
```

Cy 221 Leukspürnts Liehtskrätyrrhealavaigtyrtatarroteuleugtyservat 239 (h)	167 ArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGly 1636	Qy 103 HisPro	-11-042-988- ignment Scor sd. No.: sd. No.: reent Simila rcent Simila st Local Sim ery Match: : -09-651-6511291 65 1327
Qy 150 IleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeu 169 Db 20254	; TrE: DWA ; ORGANISM: Homo sapiens ; ORGANISM: Homo sapiens US-10-663-794-3 Alignment Scores:		Db 2008

음 성 음 성

음 성 음

ð 음 ð

유 성

중 음 S

hrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleT	19450 TCTG-TCGCCCAGGCTGGAATGCAGTGAGAATCATAAATCATAAATCATCAGGAAGCCT 19392 353 laArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyrAspProAspSerL 373 :: 19391 CGAACTCCTGGACTCAAGGGACCCTCACCCACCTCATTCTCCAGAGTAGCTGGGACTATA 19332 373 ysArgWetLeuHisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnProLeuT 393 :: 1931 GGCGC	luTyrGlnSerLye hrSerValThrGlu hrSerValThrGlu AAAAAAAAAAGAAC	271 eu	238 er	LeuGluTrp
US-09-651-51-5 (1-546) x US-11-074-176-247 (1-1287) Oy	; NAME/KEY: misc_feature ; NAME/KEY: misc_feature ; LOCATION: (0)(0) ; OTHER INFORMATION: ORF 1892; adenylosuccinate synthase US-11-074-176-247 Alignment Scores:	NUMBER OF SEQ ID NOS: 381 SOPTWARE: FRATSEQ for Windows Version 4.0 SEQ ID NO 247 LENGTH: 1287 TYPE: DNA ORGANISM: Lactobacillus acidophilus FEATURE: NAME/KEY: CDS LOCATION: (1)(1287)	APPLICANT: Klaenhammer, Todd R. APPLICANT: Russell, William M. APPLICANT: Altermann, Eric APPLICANT: McAuliffe, Olivia APPLICANT: WcAuliffe, Olivia APPLICANT: Peril, Andrea Azcarate TITLE OF INVENTION: Nucleic Acid Sequences Encoding TITLE OF INVENTION: Stress-Related Proteins and Uses Therefore FILE REFERENCE: 5051-694 CURRENT APPLICATION NUMBER: US/11/074,176 CURRENT FILING DATE: 2004-03-08 PRIOR APPLICATION NUMBER: 60/551,161 PRIOR APPLICATION DATE: 2004-03-08	18951 AAAA 517 rOAI 517 rOAI 18897 AAGG SULT 13 -11-074-176-247 Sequence 247, Application No. GENERAL INFORMAT	Db 19131 ACGGGTGGAGTTGAAATCTCCTGTGTCAGAGGCTTATAATGAGTGCCGCGGTATTGAGAG 19072 Qy 485

음 성 음 성

ち 음 ち

마 상 당 당 당

ş 밁 5 음 성

B 8 8 8 B

á 밁 밁 Ś 8 δ

Ś

```
В
                                                   APPLICANT: DUBENSKY, Thomas W., Jr.
APPLICANT: DORTNOY, Daniel A.
APPLICANT: LUCKETT, William S., Jr.
APPLICANT: LUCKETT, William S., Jr.
APPLICANT: COOK, David N.
ITITLE OF INVENTION: RECOMBINANT NUCLEIC ACID MOLECULES,
TITLE OF INVENTION: EXPRESSION CASSETTES, AND BACTERIA, A
TITLE OF INVENTION: TERREOF
FILE REFERENCE: 282172003900
CURRENT APPLICATION NUMBER: US/11/021,441
CURRENT APPLICATION NUMBER: US 60/616,750
PRIOR APPLICATION NUMBER: US 60/615,287
PRIOR APPLICATION NUMBER: US 60/615,287
                                                                                                                                                                                                                                                                                                                                             RESULT 14
US-11-021-441-8
; Sequence 8, Application US/11021441
; Publication No. US20050249748A1
; GENERAL INFORMATION:
PRIOR FILING DATE: 2004-10-01
PRIOR APPLICATION NUMBER: US 60/599,377
PRIOR FILING DATE: 2004-08-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1099 AAGCCÁGTTTATGAAGAACTTCCAGCATGGGÁÁ 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1012 GACAAGATTAAGATTTGTACTGCTTATGAACTT---GATGGTGAAAAGATT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   366 GluAspTyrAspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          346 ProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValSerGluGlyThrAlaArgLeu------LeuSerAsnSerPheAlaSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |||||::: |||
| GAAAAGCTTCGTACTAATCTTGAAATTAAGAACGAATTATTTACTAAGGTTTATGGTAAA 531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisLysLeuLysLeuThrPheGluThrAla-----LeuLysLeuArgGlyGly 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAATTGCTCATGAATATGGTACTGTTACTGGTCGACCACGCCGTGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysAspLysArgValTyrHisCysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGAGTAGGTGCAGGTCCATTCCCAACAGAACTTCTTGATGAGACCTGGTGATCGTATTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerLeuTrpLeuMetProPheSerLysAsnCys-----LysGlyAspAsn---Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTCAAAGAATGAAGAAATACGTTACTGACACTTCAGTTTTAGTAAATGACGCGCTTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCTCTTAAATTT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspProValPheAsnProLeuThrProTrpGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProSerThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATT-----GGTGCCAACCGTTTGGATACTGTAATTGGTGTCTGCAAAGCTTACACTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTACCCATTTGTAACTTCTTCAAACACTATTTCAGGTGTATTGCTTCAGGTATCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAAATAAGAAGGTTTTATTTGAAGGGGCACAAGGTATCATGCTTGATATTGATGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----LeuArgLeuGluIleAlaProLysHisTyrLeu-----LysTrpLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GlyValThrPheGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GAAGATATTTTTGACAAGTACTATGAATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTTGGTTTGACTCCGTTGCTCTTCGTCACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       396
                                                                                                                                                                                                                  BACTERIA,
                                                                                                                                                                                                                  AND METHODS
                                                                                                                                                                                                                  ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             576
                                                                                                                                                                                                                  USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: PCT/US2004/23881
PRIOR FILING DATE: 2004-07-23
PRIOR APPLICATION NUMBER: US 10/883,599
PRIOR FILING DATE: 2004-06-30
PRIOR APPLICATION NUMBER: US 60/556,744
PRIOR FILING DATE: 2004-03-26
INUMBER OF SEQ ID NOS: 129
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                           RESULT 15
US-11-085-864-1/c
                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-651-651-5 (1-546) x US-11-021-441-8 (1-1689)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-11-021-441-8
                                                          Sequence 1, Application US/11085864
Publication No. US20050246787A1
GENERAL INFORMATION:
APPLICANT: STREATFIELD, STEPHEN J.
APPLICANT: LOVE, ROBERT T.
APPLICANT: BRAY, JEFF
TITLE OF INVENTION: A GLOBULIN-1 REGULATORY REGION FILE REFERENCE: AB0002 CURRENT APPLICATION NUMBER: US/11/085,864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 1689
TYPE: DNA
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                                                                                                                                                                                                            475
                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             373 LysArgMet---LeuHisGlnLeuLysLysLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          386 spProValPheAsnProLeuThrProTrpGluArgProProIle------------L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          laGlyProlleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAAAGGATGCATCTGCATTCAATAAAGAAAATTCAATTTCATCCATGGCACCACCAGCAT 130
                                                                                                                                                                                                                                                                                                                                                 ACCTGGACTACGGCACCAACTTCCAGAAGCGCCTGTTCACCAAGATTGACACCATTGCGC
                                                                                                                                                                                                                                                                                                                                                                                     rpLeuGlyProLysValAsnIle---
                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTTCCCTGGTGGCGCCAGCTCCTGCAAGGAGACTTTCAACCTCTACTATGCCGAGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        yr-----GluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTCCGTGTGCAACGTGATGTCTGGCGACCAGGACAACTGGCTCCGCACCAACTGGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGAAGTGGTACTGCTGGACTTTGCTGCAGCTGGAGGGGAGCTCGGCTCACACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     yeAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCCGCCTGCAAGTCCTAAGACGCCAATCGAAAAGAAACACGCGGATCTCGAGCAGGGCA
                                                                                                                                                                                                                                                            CCGATGAGATCACCGTCAGCAGCGACTTCGAGGCACGCCACGTGAAGCTGAACGTGGAG
                                                                                                                                                                                                                                                                                                  roGlnProGluHisAspGlySerAspVal-----HisValGluLeuAsnValAsp 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCGAGGAGAGGCTGAGCGTATCTTCATTGAGCTCAAGTTTACTGTACGTGACTGCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.28e+03
76.50
37.02%
24.86%
2.58%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ProAspAsnTrpIleIleThrAspIleIleT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1689
45
22
63
51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TyrHisAsp--A
                                            AND METHOD OF USING
                                                                                                                                                                                                                                                                                                                                                                                            -----ThrMetAlaP
                                              SAME
                                                                                                                                                                                                                                                              609
```

á

밁 δ В

486

550

475

490

455

370 437

430

310

250 421

426

190

401

á 밁 Ş 밁 Ş 밁 δ 8 δ 밁 5 밁 δ

밁

```
CURRENT FILING DATE: 2005-03-22
PRIOR APPLICATION NUMBER: 60/555,720
PRIOR FILING DATE: 2004-03-23
NUMBER OF SEQ ID NOS: 6
SOFTWARE: PatentIn Ver. 3.3
SEQ ID NO 1
LENGTH: 1824
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; OTHER INFORMATION: Description of Artificial Sequence: Synthetic; OTHER INFORMATION: nucleotide sequence US-11-085-864-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
Ş
                                                  á
                                                                                                Ş
                                                                                                                                밁
                                                                                                                                                    ð
                                                                                                                                                                                밁
                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-651-651-5 (1-546) x US-11-085-864-1 (1-1824)
                            밁
                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             953
  214
                                                                                437
                                                                                                        185
                                                                                                                                   485
                                                                                                                                                              168
                                                                                                                                                                                       533
                                                                                                                                                                                                               148
                                                                                                                                                                                                                                             587
                                                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                                                                647
                                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                                     707
                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                           767
                                                                                                                                                                                                                                                                                                                                                                                                                                      116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54 LeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTAAGTCCGCATCTTCATGACGACCAAAGCCAGTAAAGTAGAACGGTTTGTGGTTA--- 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTAATGCGTGGTCG-----TGCACCATCAGCACGTTATCG---AATCCTTTGCCA 906
                                                                                                                                   TGGAAGTAAGACTGCTTTTTC------TTGCCGTTTTCGTCGGTAATCACCATT 438
                                                                                                                                                                                                                                                                                                                                                                                                                          AlaIleThrGluLeu------ 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyr 98
ProLysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAla 233
                                                                                                        ArgGlyGlyProSerIle------ 195
                                                                                                                                                         ------AspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeu 184
                                                                                                                                                                                      -----GTGTAGAGCATTACGCTGCGATGG-----ATTCCGGCATAGTTAAAGAAATCA 486
                                                                                                                                                                                                               AsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArg
                                                                                                                                                                                                                                           TCTTGCGCGACATGCGTCACCACGGTGATATCGTCCACCCAGGTGTTCGGCGTG-----
                                                                                                                                                                                                                                                                     TrpCysValGlu-----
                                                                                                                                                                                                                                                                                                AGTTCAACGCTGACATCACCATTGGCCACCACCTGGCAGTCAACAGACGCGTGGTTACAG
                                                                                                                                                                                                                                                                                                               GCTGTGACGCACAGTTCATAGAGATAACCTTCACCCGGTTGGCAGAGGTGCGGATTCACC 708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnGlnThrAspHisProGluCysLysSer-----ArgProAspSerGlyLeuSer 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ATCAGGAACTGTTGG------CCCTTC 828
                                          ---MetGlyAsnAsnValPheArgTyrPhe---LeuGluTrpLeuArgLeuGluIleAla
                                                                                CCCGGCGGGAT-AGTCTGCCAGTTCAGTTCGTTCACACACAAACGGTGATACGTACACT
                                                                                                                                                                                                                                                                                                                                                    ACTTGCAAAGTCCCGCTAGTGCCTTGTCCAGTTGCAACCACCTGTTGATCCGCATCACGC 648
                             TTTCCCGGCAATAACATACGGCGTGACATCGGCTTCAAATGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.85e+03
76.00
32.81%
20.94%
2.56%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                        ------PheGlyIleGluAla 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1824
67
38
80
136
23
                             -CGTATAGCCGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                 ----- 124
                                                                                                                                                                                                                                                                                                  588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72
                             322
                                                       213
                                                                                                                                                                                                                                              534
                                                                                                                                                                                                                  167
```

DЪ	δ	Ъ	γQ	Вb	Qy	ממ
174	271	222	252	279	234	321
CTGATCGTTAAA	271 LeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSerTrp 287	222 AAAGACTTCGCGCTGATACCAGACGTTGCCCGCATAATTACGAATATC 175	252GlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSer 270	279ATGAGTGACCGCATCGAAACGCAGCACGATACGCTGGCCTGCCCAACCTTTCGGTAT 223	234 ProLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPhe 251	321 ATGCTCCATCACTTCCTGATTATTGACCCACACTTTGCCGTA 280

Search completed: November 22, 2005, 14:11:21 Job time : 186 secs

THIS PAGE BLANK (USPTO)

```
Command line parameters:

-MODEL=frame+ D2n.model -DEV=xlh
-O=/cgn2 1/USPTO spool/US9651651/runat 18112005 101831 20261/app_query.fasta_1.711
-O=/cgn2 1/USPTO_spool/US9651651/runat 18112005 101831 20261/app_query.fasta_1.711
-DB=EST -OFMT=fastap -SUFFIX=rst -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosun62 -TRANS=bluman40.cdi -LIST=45
-DCGALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM-ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=2000000000
-USER=US09651651 @CGN 1 1 4015 @TUNAT 18112005 101831 20261 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-PGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                   Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
1953
1219
1122
1076
1042
1007.5
965.5
                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-5
2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   November 22, 2005, 10:39:50 ; Search time 4155 Seconds (without alignments) 6148.194 Million cell updates/sec
                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                              8:
9:
10:
11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MGANSKSVTASFTVIAVFFL......DSESIPGKRTAVWELDKSGY 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41078325 seqs, 23393541228 residues
                                                                                                                                                                        Query
65.9
41.1
37.8
36.3
35.1
34.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                          gb_est6:*
gb_est7:*
gb_gss1:*
gb_gss2:*
gb_gss3:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_est2:*
gb_est3:*
gb_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gb_est1:*
                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est5:*
                                                                                                                                                   Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                             _est4:*
                                                                                                                 1719
946
903
752
788
832
823
                                                                                                                 10
CK259394
DR929539
CF844688
CK259393
DR688001
DN503413
                                                                                                                                                        ij
                                                                                                               CL949010
                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82156650
CL949010 OSIFSB002
CK259394 EST705472
DR929539 EST112107
CF844688 psHB029xF
CK259393 EST705471
DR688001 EST107888
DN503413 Y014D01.5
                                                                                                                                                      Description
```

0 0 0

ი ი

AW120335 614089		13.8	410	44
21704 35	92 7 CO52170		413	44
2456 35	98 7 CO53245	4	424	3
60400	59 1 AW76040	٠.	433	2
58640 PX	63 8 CV95864	4.	437	41
12885	64 8 DN21288	5	456	40
8996	17 7 CV18996	5	472.5	39
07859	49 8 DN20785	٠,	488	38
67066	92 2 BG36706	٥.		37
44186	25 9	.7	521.5	36
77	18 2	.7	523	3
90926	94 1		541	34
15712	02 7		550	ü
8105	83 8		556	32
67156	88 2	٩	569	3
4065	97 8	۰	73	30
30907	28 7		601.5	9
26779	17 8	٢	73	8
58	44 7	ω	28	27
5704	78 3		715	6
469	43		730	25
291	34 1		734	24
56623	47 6		748.5	ü
67124	28 2		795	ວ
1313	83 6	.7	808	ï
06500 A	28	.7	810	õ
10878	60	.7	818	9
BQ584361 E011859	65 5	.7	823	18
90564	76 6		832	7
78732 L	94 7		æ	9
w	32		841.5	տ
37072 A	96 1	Ψ.	87	4.
2757	04 3 BI42275		•	ω
G600021 E	92 2 BG60002		0	N
60764 E	68 7 CK2607	٠	91	H
14958 E	77 8 DR91495		•	0
8623 E	86 5 BQ50	31.0	9	9
39714 CG	13 7 CK93971	.~	•	æ

ALIGNMENTS

```
Alignment
Pred. No.:
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
            Ś
                                 문
                                              Ş
                                                              밁
                                                                              S
                                                                                                   음 성
                                                                                                                                 g
                                                                                                                                                  중 유 장
                                                                                                                                                                                                    유
                                                                                                                                                                                                                                     음 성
                                                                                                                                                                                                                                                                         음 성
                                                                                                                                                                                                                                                                                                        占
                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-651-651-5
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No : :
                                                247
                                                                 586
                                                                                 227
                                                                                                                     207
                                                                                                                                    466
                                                                                                                                                                        433
                                                                                                                                                                                                                                          394
                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                            334
                267
                                 646
                                                                                                                                                      187
                                                                                                                                                                                         167
                                                                                                                                                                                                          432
                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                                                                                                214
                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                   100
706
                                                                                                                                                                                                                                                                                                                              87
                                                                                                                                                                                                                                                                                                                                                                67
                                                                                                                                                                                                                                                                                                                                                                                                  47
                                                                                                                                                                                                                                                                                                                                                                                                                                    27
                                                                                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J
                                                                                                                                                                                                                                                                                                                                                                                 GlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGCGATGGCGGCGCGGATTTC-----GACTACCGGAAGCTCTCGGGGATAATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerValThrAlaSerPheThrValIleAlaValPhePheLeuIleCysGlyGlyArgThr
                                         SerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSer
                                                                  GCATACTTTGCAGTTGGTGCACCTCTTCTTGGTTCTACTGAAGCAGTTAAAGCTGCTCTT
                                                                             AlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeu
                                                                                                    -----TTAACTTTTGAAACTGCATTGAAACTTCGAGGA
                                                                                                                                                                                  ArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGly
                                                                                                                                                                                                                        AlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGlu
                                                                                                                                                                                                                                                   GlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGlu
                                                                                                                                                                                                                                                                          AAGTCAAGGCCTGACAGTGGTCTTTCTGCAATTACAGAGTTAGACCCTGGTTATATAACT
                                                                                                                                                                                                                                                                                     LysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThr
                                                                                                                                                                                                                                                                                                                        AsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCys
                                                                                                                                                                                                                                                                                                                                                 TTCGACTTCAACCCCCTCGACTCCGTCTGGCTCGACACCGCCAAGCTCTTATCTGCTGTC
                                                                                                                                                                                                                                                                                                                                                          LeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                               AlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                     rccereccereccereccereccereccereccereccereccerecerecerecer
        PheAlaSerSerLeuTrpLeuMetProPheSerLy8AsnCy8Ly8GlyAspAsnThrSer
                                                                                                                                       GGGCCTTCTTTAGTGTTTGCTCATTCCATGGGTAATAATGTGTTTCGCTACTTTCTGGAA
                                                                                                                                                                                                                                                                                                               AATTIGCTGGCTCAAATGCATGCTGCTCGACCCTTACAACCAGACGGATCATCCAGAGTGC
GGTCCTCTTTCTTCAGTGTGGAAAGAATGGGTCAAATGG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Oryza sativa (indica cultivar-group)"
|mol type="genomic DNA"
|/mol type="genomic DNA"
|/mol type="caxon:39946"
|/clone lib="Cryza sativa Express Library"
|/note="Oryza sativa exon trapped genomic sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      x CL949010 (1-1719)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.21e-201
1953.00
74.02%
65.30%
65.87%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1719
367
49
82
64
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequences<sub></sub>
                                                                                                                                                                                                                           166
                                                                                                                                                                                                                                                            146
                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                333
                                                                                                                                                                                                                                                                                                                                106
                                                                                                                                                                                                                                                                                                                                                  273
                                                                                                                                                                                                                                                                                                                                                                  86
                                                                                                                                                                                                                                                                                                                                                                                                                                     46
                286
                                 705
                                                                   645
                                                                                   246
                                                                                                     585
                                                                                                                                       525
                                                                                                                                                        206
                                                                                                                                                                         465
                                                                                                                                                                                         186
                                                                                                                                                                                                          432
                                                                                                                                                                                                                                            432
                                                                                                                                                                                                                                                                             393
                                                                                                                                                                                                                                                                                                                                                                                  213
                                                                                                                                                                                                                                                                                                                                                                                                   99
                ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                 무요
                                                                                                                                                                                                                                                                                                                                                        B 8
                                                                                                                                                                                                                                                                                                                                                                                      참 원
                                                                                                                                                                                                                                                                                                                                                                                                                       片 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유 &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B 8
                                                                                                              D Q
                                                                                                                                          D O
                                                                                                                                                                                D Q
                                                                                                                                                                                                             ₽ S
                                                                                                                                                                                                                                                    g Q
                                                                                                                                                                                                                                                                                   ₽ 9
                                                                   DEFINITION
                                                                             POCAR
```

clone POAB029 5' end, mRNA sequence. CK259394 CK259394.1 GI:39816372	SSI
CK259394 EST705472 potato abiotic stress cD	RESULT 2 CK259394 COCUS DEFINITION
94 1)b
545 GlyTyr 546	γ.
TTTGAAGAT	–
25 TyrGluAspSerGluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSer 5	 Y
474 GTAGGCCAGGGCATACTCCCCAAACATGACGAGGACTCCACATGTGAAGTACATAACCTAC 15	_
05 HisGlySerAspIleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPhe 52	ı
485 AlaProGlnHroGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGlu 504	
354 TCCTACAATTCTCTCTCATGGTGCAAGAACTGGCTTGGGCCAAAAGTGAACATAACTAGG 1	ъ 1:
65 ProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMet 48	YG.
94 TCCAGATCAGGTAATTCTGTTACTGGAAAGCCCCAACAATTCCAGCGGAGACGGAACGGT	ъ т
45 SerArgSerGlyThrValValAsp(γ,
37 TyrGluThrGluGlySerLeuVal 4	F 84
174 TATTATTTTGCACCGAGTGGAAAACCATATCCAGATAACTGGATAATAACTGATATTATT 12	
7 TyrTyrPheAlaProSerGlyLysBrroTyrProAspAsnTrpIleIleThrAspIleIle 43	
1114 AGACCCCCAATAAAGAATGTGTTCTGCATATATGGGCTTGATTCAAAGACTGAGGTAGGC 1173	H 1:
7 ArgProProIleLysAsnValPheCysIleTyrGly	¥
54 CATCAGCTTGAGAAGTACTACCAGGGTGATCCAGTT	⊥
77 HisGlnLeuLysLysLeuTyrHisAspAspProValPheAsnProLeuThrP	¥
94 TCAGATGGTACTCTGTTTAAAACCATAAAGGATTGGGACCCTCAGAGCATAGGGCTTATC	
7	Υ
34	
338 MetThrSerMetGluCyeGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeu 356	₹
::: ::: 874 GAGGTTCCTACAGTTCGAGATACGGAAGCATACCCATCCAT	
24	
814 TGTGATGAAATGGAATATAAGTCTGAATACTCAGGATGGCCCACAAACCTTGTCAGCATC 873	
04 ÇysAspGluGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIl	ž.
287 TrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHis 303	ž.

Solanum tuberosum (potato)
Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
asterids; lamiids; Solanales; Solanaceae; Solanum.

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
COMMENT
                           8
                                                                      밁
                                                                                                S
                                                                                                                                             밁
                                                                                                                                                                            á
                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
밁
                                                                                                                                                                                                                                                                                              US-09-651-651-5 (1-546) x CK259394
                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
182
                                                                        122
                                                                                                           267
                                                                                                                                                                                    247
                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           l (bases 1 to 946)
Buell, C.R., Hart, A., Zismann, V., Karamycheva, S.A. and Baker, B. Generation of ESTs from abiotic stressed potato tissue Unpublished (2003)
Other ESTs: EST705470 EST705471 EST705473
Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr. Rockville, MD 20850, USA
                                                                                                                                                                                                                         N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: potato-array@tigr.org
Clones can be requested from the University of Arizona Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Institute via http://genome.arizona.edu/orders/
Seq primer: CAG GAA ACA_GCT ATG ACC.
                                                                                                                                                                      SerGlyValThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSer 266
                                                                                                                                                                                                                                             AlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeu
                         TrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGlu 306
                                                                                                                                                                                                                         GCCTATTTTGCTGTTGGAGCTCCTCTTCTTGGTGCTATCGAGACAGTCAAAGCAACATTA
 CGGAGACATTTCTCTGGTGGA----AACAGAAAATACCATCATGCCTACCATTGCGATGAG
                                                                        TTTGGATCTTCTATATGGATGTTACCATTTTCAAAATATTGTACAACTGATAATGCATAT 181
                                                                                                         PheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSer
                                                                                                                                                   TCGGGGTCTACATTTGGTCTTCCTGTTTCAGAGGGGACAGCTCGCCTGATGTTCAATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /lab_nost="helub-tona"
/clone lib="potato abiotic stress cDNA library"
/clone lib="potato abiotic stress cDNA library"
/note="Vector: pCMVSport6.1; Site_1: EcoRI; Site_2: NotI;
supplier: Solanum tuberosum var. Kennebec plants were
grown from cuttings on a 16hr light/8 hr dark cycle at 25
C for 3-4 weeks. Abiotic stress conditions were applied to
four separate sets of plants. Set 1 involved saturation of
the soil with 150 mM NaCl and tissues were harvested at
following application of the salt stress (leaves: 2hr,
6hr, 11hr, 1d, 2d, and 4d; roots:2hr, 6hr, 11hr, and 2d).
Set 2 were grown under the standard conditions and then
were water stressed by withdrawal of further watering
applications. Drought stressed plants were harvested after
cessation of watering (leaves: 3d, 5d, and 7d; roots:3d
and 5d). Set 3 were grown under the standard conditions
and then were cold stressed by placement at 4 C. Cold
stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d,
and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d,
2d. Set 4 were grown under the standard conditions and
then were has stressed by placement at 35 C. Heat
stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d,
2d and 4d and heat-stressed roots were harvested at 6 hr,
12 hr, 1 d, and 4d, RNA was isolated from all tissues and
equal RNA from each tissue and stress was pooled to
construct the cDNA library. RNA sample."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="abiotic stress treated leaf and root tissue"
/lab_host="DH10B-TonA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:4113"
/clone="POAB029"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                     7.61e-122
1219.00
80.63%
70.16%
41.11%
                                                                                                                                                                                                                                                                                                  (1-946)
                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                       946
221
33
52
9
                                                                                                                                                   121
   238
                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
DR929539
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                              COMMENT
                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           299
                                                                                              Unpublished (2005)
Other_ESTs: EST1121077
                                                                                                                               1 (bases 1 to 903)
Hodges, S.A., Rensink, W., Buell, C.R.,
Nordborg, M. and Tomkins, J.
Generation of ESTs from Aquilegia
                                                                                                                                                                                                                                                                                                                                           pubescens cDNA
DR929539
                                                                                                                                                                                                                                                                                                                          DR929539.1 GI:71698902
```

```
340 SerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239 CATGAACTTAAATCAAAGTACTCTGGCTGGCCAACAACATAATCAATATTGAAGTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307 GluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIlePro
                                                                                                                                                                                                                                                     Aquilegia formosa x Aquilegia pubescens Aquilegia formosa x Aquilegia pubescens Eukaryota; Viridiplantae; Streptophyta; Embryo Spermatophyta; Magnoliophyta; eudicotyledons; Ranunculaceae; Aquilegia.
                                                                                                                                                                                                                                                                                                                                                                                                                               DR929539 903 bp mRNA linear EST 02-AUG-:
EST1121078 Aquilegia cDNA library Aquilegia formosa x Aquilegia
pubescens cDNA clone CO1NX27, mRNA sequence.
Contact: Scott Hodges
Department of Ecology, Evolution and Marine
University of California, Santa Barbara
Santa Barbara, CA 93106, USA
Tel: 805 893 7813
Fax: 805 893 4724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATATAGAGCATCCAACATGGTGAAGATATCATTCCCCAATATGACAAAGTTAGCTACAAT 898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnValAspHis-GluHisGlySerAspIleIleAlaAsnMetThrLysAlaProArgVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValAsnIleThrMetAlaProGlnProGluHisAspGlySerAspValHisValGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCTTTTTCAAAGCCATAAAGAATTATGATCCTGACAGTGAAAGACTCTTTCACCTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAATGGAATGTGGATTCCCGACACAATTGTCCTTTTTCTGCTCGTGAAGTCTCTGACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGATTCGAGGGAATGAGGTTTATCCCTCAGTTGTAGAAACTGCCCAAACCAACTTGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAACATAACAAGGACACCACAGTCAGAGCATGATGGCTCAGCTGTACAAGTGCATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGGATGAGACGGTGCCATACCATTCCCTCTCCTGGTGCAAGAATTGGCTGGGGCCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAAAGTCTTACCATGATGATCCGATTTTAAATCCTCTAACACCTTGGGAAAGACCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----ThrSerValThrGluThrAlaLeuValAsnMetThr
                                                                                                                                                                                                                                                                                  Embryophyta; Tracheophyta;
edons; Ranunculales;
                                                                                         Biology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 02-AUG-2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             359
```

```
S
                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                             밁
                                                                                                                                                          á
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x DR929539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                           Ś
                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                No.:
                                                               358
                                                                                                328
                                                                                                                                 298
                                                                                                                                                              318
                                                                                                                                                                                               241
                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                               278
                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 LeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaProLeuLeuGly
                                                                                                                                                                                                                                                                                                                                                               258
                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: hodges@lifesci.ucsb.edu
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 GTCCAATGGCTTGATGACCACATACATGCCTATTTTGCAGTTGGAGCCCCTCTTCTTGGT
CAGTTATCCTTCTCTGCTAGGGAAGTGTCAGATGGAACATTATTCAGGGCTATCAAGGAA
                  LeuLeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAsp
                                                                                                                                                                                                                   AspLysArgValTyrHisCysAspGluGluTyrGlnSerLysTyrSerGlyTrpPro
                                                                                                                                                                                                                                                                                                                                                 GlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetProPheSer
                                                                                                                                                                                                                                                                                                                                                                                               TCCTCTCAAACGGTTAAAGGAGCACTCTCCGGAGAAACATTTGGCCTTCCAGTTTCTGAG
                                                             ThrAsnIleIleAsnIleGluIleProSer-----
                                                                                                                                                                                                  AATCACAAA---
                                                                                                                                                                                                                                                              AAGTATTGTAGGACCGATAATGTATACTGGAAGCATTTCTTTGAGGGAAGAGGCACGGGC
                                                                                                                                                                                                                                                                                             LysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAlaLysLys
                                                                                                                                                                                                                                                                                                                              GGAACAGTTCGACTGTTATTTAATTCATTTGGTTCTTCGGTATGGATGATGCCATTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                    SerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProValSerGlu
                                                                                              ThrSerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThr
                                                                                                                                 ACTAACATTGTGAATATCGAAATTCCTTCAACTCGAGGTGCAGCTTAAGAACCTTGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        flower buds, leaves and roots"

//tissue type="mixed shoot and floral apical meristems,
flower buds, leaves and roots"

//lab host="DHIOB TI (Tl and T5 phage resistance)"
//clome libs"*Aquilegia cDNA library"
//note="Vector: pCMV SPORT6.1; Site 1: ECORI; Site 2: NotI;
F2, F3, and F4 lines of Aquilegia Formosa X A. pubescens
were grown from seed in greenhouses at UC Santa Barbara.
From these plants three sets of tissue were collected: 1)
Small flower buds (<10 mm) and very young inflorescences
(71 & 29% by weight respectively), 2) Medium (7-20 mm) and
large (at or near anthesis) flower buds (65 & 35% by
weight respectively) and 3) Shoot apical meristens. A
fourth set of tissue was collected from plants of A.
formosa. These plants were grown from seed in sand and at
approximately 1 month root tissue and leaf tissue of
various developmental stages were collected from each
set of tissue and pooled in the following proportions:
1.5X from sets 1 & 2, 1X from sets 3 & 4. From the pooled
total RNA, mRNA was extracted and enriched for full-length
messages and then normalized with proprietary methods by
Invitrogen."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="mRNA"
/db_xref="taxon:338618"
/clone="CO1NX27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organism="Aquilegia formosa x Aquilegia pubescens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.81e-111
1122.00
80.13%
67.22%
37.84%
                                                                                                                                                                                                  ·TACCACTGTGATGATATGGAGTATCGGTTTAATTACTCTGGATGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-903)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 203
203
203
22
                                                                                                                                 357
                                                               416
                                                                                                347
                                                                                                                                                                                                  297
                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 4
CF844688
                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    717
                                                                                                                                                                                                                                                                                                                                                                            Tyler, B. Not Published Unpublished (2003)
                                                                                                                                                                             FORWARD: BK reverse primer
BACKWARD: BK reverse primer
Platte: 029 row: F column: 13
Seq primer: BK reverse primer
High quality sequence stop: 752.
                                                                                                                                                                                                                                                                                                                                                 Contact: Tyler B
Tyler lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phytophthora sojae
Eukaryota; stramenopiles;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST.
Phytophthora sojae
                                                                                                                                                                                                                                                                  Email: bmtyler@vt.edu
PCR PRimers
                                                                                                                                                                                                                                                                                                 1880 Pratt Dr., Blacksburg,
Tel: 540-231-7318
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Phytophthora.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CF844688.1 GI:38060342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aspile 509
                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 752)
                                                tissue_type="mycelium"
/cell_line="P6497"
                                                                                /organism="Phytophthora
/mol_type="mRNA"
/db_xref="taxon:67593"
/clone="9HB029F13"
                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                    ٧A
                                                                                                                                                                                                                                                                                                                    24061,
```

```
752 bp mRNA linear EST 30-OCT-psHB025xF13f USDA-IFAFS:Expression of Phytophthora sojae genes during infection and propagation_sHB Phytophthora sojae cDNA clshB025F13 5, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySer 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerLeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyAlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValPheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyr 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrAspProAspSerLysArgMetLeuHisGInLeuLysLysLeuTyrHisAspAspPro 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTGAGCATGACGGATCTGATGTACAAGTGGACCTAAACGTAGAGCATCATCACAATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAATTTAGTTAATGGGAATCCTGGAGCTTCAAGTGGGGATGAGACAGTCCCATATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHis 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATAACTGGATCATAACTGATATTGTTTATGAAAATGAAGGAGCTTTATTTTCAAGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspAsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGTTAAATCCTCTTACACCATGGGATAGACCACCTTTGAAGAACATATTTTGCATATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATGATCCAGATACAGAAAAACTATTGTATCAACTAGAGAAGTTATATCATGATGATGCA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTCTATCATGGTGCAAGACGTGGCTTGGGTCTAAAGTAAACATAACAAGGGCTCCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAATAGATTCAAAGACTGAGGTTGGGTATTACTTTGCTCCGAGTGGCAAACCATATCCT
/dev_stage="48 hr. post infection stage"
/lab_host="Soybean plant"
/clone_lib="USDA-IFAFS:Expression of Phytophthora
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oomycetes; Pythiales; Pythiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sojae cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 30-OCT-2003
        војае
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       836
```

Alignment Scores:

genes during infection and propagation_sHB"
/note="Vector: pBK-CMV; Site_1: EcoR1; Site_2: Xho1"

ö

Length: Matches:

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                        ACCESSION
VERSION
KEYWORDS
                                                                                                      RESULT 5
CK259393
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                         ર્જ
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-651-651-5 (1-546) x CF844688
                                                                                                                                                           밁
                                                                                                                                                                               δ
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                    S
                SOURCE
                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                    491
                                                                                                                                                                                                                                                                                                                                                                                                                      431
                                                                                                                                                                                                                                                                                                                                                                                                                                               149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                             169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              251
                                                                                                                                                           731
                                                                                                                                                                                  248
                                                                                                                                                                                                             671
                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                               611
                                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                                                  551
                                                                                                                                                                                                                                                                                                                                           189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29
Solanum tuberosum (potato)
Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                         EST
                                                                              EST705471 potato clone POAB029 5'
                                                    CK259393.1
                                                                                                        CK259393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAGACGGCGCCGAGCTC-----GACTACTCGAAGCTCTCCGGCATTATAATCCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIleIleProGly
                                                                                                                                                                                                                                                                                                                                                                   LeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyPro 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuSerThrValTrpLysGluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsn 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAlaValAsnCys 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCGCATCCACTCAGCTCCGAGCATGGTCCATTCTCGACTGTCCTTACTCTCCGCTCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAsp 68
                                                                                                                                                                                                                                                                            ArgLeuGluIleAlaProLysHisTyrLeuLysTrp-LeuAspGlnHisIleHisAlaTy 228
                                                                                                                                                                                                                                                                                                                              SerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeu 208
                                                                                                                                                                                                                                                                                                                                                                                                                      GCAATAATTGCTGTTCCATATGATTGGAGATTGTCGCCCTCCAAGCTTGAAGAGCGGGAC 490
                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGluGluArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTCATCGGTTTGGAAAGAATGGATTAAGTGGTGTATTGAATTTGGCATAGAAGCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCCTGATAGTGGTCTTTCTGGTATTACAGAACTTGATCCGGGTTATATAACAGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIleThrGlyPro 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGluCysLysSer 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                yValThrPheGlyLeuProVal 255
                                                                                                                                                                                                            rPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeuSerGl 248
                                                                                                                                                                                                                                                               AAGCTAGAGATTGCACCANAACATTATATCCAGTGGGTTGGATCAACATATTCGTGCCTA
                                                                                                                                                                                                                                                                                                                  TCTTTAGTTTTTGCCCATTCATTGGGTAATCATGTTTTCCGTTATTTCTTGGAGTGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCTTAAGTGTATGGTTGGATCCTTACAATCAGACAGATCATCCTGATTGCAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.24e-106
1076.00
92.98%
85.09%
36.29%
                                                      GI:39816371
                                                                             abiotic stress cDNA library Solanum end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-752)
                                                                                                        788 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative:
                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   752
194
18
13
3
                                                                                                         EST 03-AUG-2004
                                                                                             tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                                                      550
                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48
                                                                                                                                                                                                                                                                                                                    610
                                                                                              CDNA
                                                                                                                                                                                                              730
```

á 밁 Ś 밁 á

286 122

rTrpThrHisPheSerGlyGlyAlaAlaLysLysAspLysArgValTyrHisCysAspGl

rPheAlaSerSerLeuTrpLeuMetProPheSerLysAsnCysLysGlyAspAsnThrSe TCCGGGGTCTACATTTGGTCTTCCTGTTTCAGAGGGGACAGCTCGCCTGATGTTCAATAC

ATTTGGATCTTCTATATGGATGTTACCATTTTCAAAATATTGTACAACTGATAATGCATA

181

121

247

SerGlyVal-ThrPheGlyLeuProValSerGluGlyThrAlaArgLeuLeuSerAsnSe 266

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
     밁
                                                   Ś
                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                             US-09-651-651-5 (1-546) x CK259393 (1-788)
                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                        Scores:
                                                               227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; asterids; lamiids; Solanales; Solanaceae; Solanum.
1 (bases 1 to 788)
Buell, C.R., Hart, A., Zismann, V., Karamycheva, S.A. and Baker, B.
Generation of ESTs from abiotic stressed potato tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2003)
Other EST8: EST705470 EST705472 EST705473
Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850,
     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: potato-array@tigr.org
Clones can be requested from the University of Arizona
Institute via http://genome.arizona.edu/orders/
Seq primer: ATT TAG GTG ACA CTA TAG.
AlaTyrPheAlaValGlyAlaProLeuLeuGlySerValGluAlaIleLysSerThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                           /lab_nost="whith=TonA"
/clone lib="potato abiotic stress cDNA library"
/clone lib="potato abiotic stress cDNA library"
/note="Vector: pCMVSport6.1; Site 1: EcoRI; Site 2: NotI;
supplier: Solanum tubercosum var. Kennebec plants were
grown from cuttings on a 16hr light/8 hr dark cycle at 25
C for 3-4 weeks. Abiotic stress conditions were applied to
four separate sets of plants. Set 1 involved saturation of
the soil with 150 mM NaCl and tissues were harvested at
following application of the salt stress (leaves: 2hr,
6hr, 12hr, 1d, 2d, and 4d; roots: 2hr, 6hr, 12hr, and 2d).
Set 2 were grown under the standard conditions and then
were water stressed by withdrawal of further watering
applications. Drought stressed plants were harvested after
cessation of watering (leaves: 3d, 5d, and 7d; roots:3d
and 5d). Set 3 were grown under the standard conditions
and then were cold stressed by placement at 4 C. Cold
stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d,
and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d,
and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d,
2d and 4d and heat-stressed by placement at 35 C. Heat
stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d,
2d and 4d and heat-stressed serves harvested at 2 hr, 6 hr, 12 hr, 1 d,
2d and 4d and heat-stressed roots were harvested at 6 hr,
12 hr, 1 d, and 4d. RNA was isolated from all tissues and
equal RNA from each tissue and stress was pooled to
construct the cDNA library. RNA sample."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="POAB029"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref="taxon:4113"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Solanum tuberosum"
                                                                                                                                                                                1.25e-102
1042.00
82.20%
71.59%
35.14%
                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                       Gaps:
                                                                                                                                                                             788
189
28
38
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
              61
                                                               246
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                             FEATURES
                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                      779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     459
                                                                                                                                        Plant Genomics Group
The Institute for Genomic Research
9712 Medical Center Dr. Rockville,
                                                                                                                                                                                     Buell, C.R., Zheng, i., Cowles, A. and Cairney, J. Sequencing of ESTs from loblolly pine embryonic libraries Unpublished (2004)
Contact: C. Robin Buell
                                                                                                                                                                                                                                                                                                                                                    DR688001 832 bp mRNA EST1078084 Normalized pine embryo library, clone PWABZ19 3' end, mRNA sequence.
                                                                                                     Email: rbuell@tigr.org
This clone is available through TIGR. Please contact for further information
                                                                                                                                                                                                                                         Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Spermatophyta; Coniferopsida; Coniferales; Pinaceae;
                                                                                                                                                                                                                                                                                                                           DR688001
DR688001.1 GI:70776477
                                                                                                                                                                                                                                                                                   Pinus taeda
                                                                                                                                                                                                                                                                                                Pinus taeda (loblolly pine)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uGluGluTyrGlnSerLysTyrSerGlyTrpProThrAsnIleIleAsnIleGluIlePr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGAGACATTTCTCTGGTGGA---AACAGAAAATACCATCATGCCTACCATTGCGATGA 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                        sValAsnIle 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uLysLysLeuTyrHisAspAspProValPheAsnProLeuThrProTrpGluArgProPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oSer-----ThrSerValThrGluThrAlaLeuValAsnMetTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGGATGAGACGGTGCCATACCATTCCCTCTCCTGGTGCAAGAATTGGCTGGGGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeuGlyProLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGlyProIleTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        eAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIleTyrGluTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OIleLysAsnValPheCysIleTyrGlyAlaHisLeuLysThrGluValGlyTyrTyrPh
|:::||||||:::|||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YThrLeuPheLysAlaIleGluAspTyrAspProAspSerLysArgMetLeuHisGlnLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAATGGAATGTGGATTCCCGACACAATTGTCCTTTTTCTGCTCGTGAAGTCTCTGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rSerMetGluCysGlyLeuProThrLeuLeuSerPheThrAlaArgGluLeuAlaAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTGAACATA 788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAAGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCACCAAGTGGGAAGCCTTATCCTGATAATTGGATTATAACAGATGTGATATATGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAAAAGTCTTACCATGATGATCCGATTTTAAATCCTCTAACACCTTGGGAAAGACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACCTTTTTCAAAGCCATAAAGAATTATGATCCTGACAGTGAAAGACTCTTTCACCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCGATTCGAGGGAATGAGGTTTATCCCTCAGTTGTAGAAACTGCCCAAACCAACTTGTC
                                                                                        further information primer: TAA TAC GAC TCA CTA
        /organism="Pinus taeda"
/mol type="mRNA"
/cultivar="7-56 mother tree, open-pollinated tree from,
Lyons, Georgia, USA"
                                                                             location/Qualifiers
                                                                                           TAG
                                                                                           ନ୍ଷ
                                                                                                                                                                                                                                                                                                                                                                   linear EST 12-JUL-200
Lib_D Pinus taeda cDNA
                                                                                                                                                                                                                                                         Tracheophyta;
Pinus; Pinus.
                                                                                                                    pine@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  718
                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                        밁
                                                S
                                                                             밁
                                                                                                      á
                                                                                                                                                          S
                                                                                                                                                                                         밁
                                                                                                                                                                                                                á
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similari
                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scores:
160
                                                                               421
                                                                                                                                    361
                                                                                                                                                                                         301
                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity:
                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳
```

```
/clone="WMABZ19"
/tissue_type="Whole embryos excised from megagametophytes"
/lab host="DH10B"
/clone lib="Normalized pine embryo library, Lib D"
/clone lib="Normalized pine embryo library, Lib D"
/note="Organ: Zygotic Embryos; Vector: pGADT7-ReCAB;
Site_1: EcoRI, Site_2: ClaI; Library enriched in
transcripts present in suspension culture of Loblolly Pine
(Pinus taeda L.), 7-56. Suspension culture was established
from fertilized megagametophytes, according to method of
Pullman et al 2003 (Pullman, G., S. Johnson, G. Peter, J.
Cairney, and N. Xu. 2003. Improving loblolly pine somatic
embryo maturation: Comparison of somatic and zygotic
embryo maturation: Comparison of somatic and zygotic
embryo morphology, germination, and gene expression. Plant
Cell Reports 21:747-758.) This suspension cell culture,
which contains early developing embryos and
undifferentiated embryogeneic tissue, was the source of
the RNA used for the suspension culture library.
Subtracted from this was cDNA made from a pool of RNA from
zygotic embryos and female gametophytes from all stages of
development plus somatic embryos from developmental stages
beyond susepension culture (see Ciavatta VT, Morillon R,
Pullman GS, Chrispeels M, Cairney J. 2001. An
aquaglyceroporin is abundantly expressed early in the
development of the suspensor and the embryo proper of
lobbolly pine (pinus taeda L.). Plant Physiol. 127:
[fittp://www.plantphysiol.org/cgi/content/full/127/4/1556])
["ttp://www.plantphysiol.org/cgi/content/full/127/4/1556])
```

```
US-09-651-651-5 (1-546)
                                                                                                                                                                                                             100 GlnThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 ATCTCATTAGAGGCGCAAGAGGCCAGTGGTGAAGGGGAACGATGGTCGGAGTACAGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyr---Ser
SerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGlu
                                                                  CysValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeu
                                                                                                               CTCGACCCTGGTTTTATAACAGGTCCACTTTCTTCTTTTGGAGAGAATGGGTTCAGTGG
                                                                                                                                              LeuAspProGlyTyrileThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrp
                                                                                                                                                                                       AGAAAGGTAATTTCTGTTGTGAATTGTTGGCTAAAGTGCATGATGCTTGACCCCATACAAT
                                                                                                                                                                                                                                                                                         ThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsn
                                                                                                                                                                                                                                                                                                                                          CTCGATTGCCCCTTTTCTCCTCTTGATTTCCACCCGCTGGATTCTGTTTGGCTCGACACC
                                                                                                                                                                                                                                                                                                                                                              AAGCTTTCTGGAGTTATAATTCCGGGATTTGCTTCAACGCAACTCAGAGCATGGGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                  LysLeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGCAGCATCATCAACTCTGTTCACAAAGATCCTTATTTTGTATACTCTTCTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8.03e-99
1007.50
84.05%
70.82%
33.98%
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x DR688001 (1-832)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 832
182
34
39
                                                                                                                                                                                                                             119
                                                                            159
                                                                                                                 480
                                                                                                                                                      139
                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                         540
                                                                                                                                                                                           420
```

밁

8 밁 Ş 밁 S 밁 á

밁

```
RESULT 7
DN503413
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                          Best I
Query
DB:
           밁
                               ş
                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                            Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                             US-09-651-651-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                     216
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Populus tremula
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
rosids; eurosids I; Malpighiales; Salicaceae; Salicace; Populus.
1 (Dases 1 to 823)
Sterky,F., Bhalerao,R.R., Unneberg,P., Segerman,B., Nilsson,P.,
Brunner,A.M., Charbonnel-Campaa,L., Lindvall,J.J., Tandre,K.,
Strauss,S.H., Sundberg,B., Gustafsson,P., Uhlen,M., Bhalerao,R.P.,
Nilsson,O., Sandberg,G., Karlsson,J., Lundeberg,J. and Jansson,S.
A Populus EST resource for plant functional genomics
Proc. Natl. Acad. Sci. U.S.A. 101 (38), 13951-13956 (2004)
                                                                                                                                                                                                                                                                                                                                        901 87 Umea, Sweden
Tel: +46 90 786 5279
Fax: +46 90 786 6676
Email: bo.segerman@pl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DN503413 823 bp mRNA linear EST 10-MAR-2005 Y014D01.5pR Populus infected leaf substracted cDNA library Populus tremula cDNA clone Y014D01 5', mRNA sequence.
           \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                          Other_ESTs: Y014D01,
Contact: Bo Segerman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DN503413.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                             Umea Plant Science Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGAGACCATAAAAGCAGCTTTGTCTGGACTTACTTTTGGGCTTCCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGCTGGGATGATCACATCTATGCTTATATCGCTGTTGGAGCACCTTTTCTTGGAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCTTTCGATATTTTCTGGAGTGGTTGAAGTTTGAAATTGCTCCCAAGCTCTATAATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGCTTCGAGGCTCGAGGAACGGGATCTTTACTTCCATAAGCTAAAGTTGACTTTTGAA
                                                                (1-546)
                                                                                                                                                                                                                                                                                                                                                                                                University
                                                                                                                                                                                                                                                                                                                                         bo.segerman@plantphys.
                                                                                                                                                                                                                  /clone_l
library"
                                                                                                                                                                                                                               tissue_type="Virus/Fungal infected leaf"
/clone_lib="Populus infected leaf substracted/
                                                                                                                                                                                                                                                         /organism="Populus tremula"
/mol type="mRNA"
/db xref="taxon:113636"
/clone="Y014D01"
                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                          3.07e-94
965.50
73.94%
61.24%
32.56%
                                                               ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:60713603
                                                                DNS03413
                                                                                                                                                                                                                                                                                                                                                                                                                                         Y014D01.3pR
                                                                 (1-823)
                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                             Department
                                                                                                                                                                                                                                                                                                                                           . umu
                                                                                                                                                                                                                                                                                                                                           . 8e
                                                                                                                                                                                                                                                                                                                                                                                                             0f
                                                                                                                                                                                                                                                                                                                                                                                                              Plant
                                                                                           823
188
39
41
41
                                                                                                                                                                                                                                                                                                                                                                                                             Physiology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      255
                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
                                        235
              60
                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                     RESULT 8
CK939714
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                          밁
                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                               닭
                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                 565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236 LeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuProVal
                                                                                                                                                                                                                                                                                                                                                                                    449
                                                                                                                                                                                                                                                                                                                                                                                                                                         429
                                                                                                                                                                                                                    509
                                                                                                                                                                                                                                               744
                                                                                                                                                                                                                                                                          489
                                                                                                                                                                                                                                                                                                     589
                                                                                                                                                                                                                                                                                                                               469
                                                                                                                                                                                                                                                                                                                                                         625
                                                                                                                                                                                          803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; rosids; eurosids II; Sapindales; Rutaceae; Citrus.
                                        Citrus sinensis
Citrus sinensis
                                                                                                          CGF1004746_F04
cDNA clone F169
                                                                                 CK939714.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTATCCTTTTCAGCTCGTGAAATATCAGATGGGACCCTTTTCAAAGCAATTGAAGATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TrpProThrAsnI1eI1eAsnI1eGluI1eProSer------Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysLysAspLysArgValTyrHisCysAspGluGluGluTyrGlnSerLysTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTTCTAAGTATTGTAGAACCGATAATTCTTACTGTAGGCATTTTGCCGGGGGA---TTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheSerLysAsnCysLysGlyAspAsnThrSerTrpThrHisPheSerGlyGlyAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTGAGGGAACAGCTCGATTGATGTTCAATTCTTTTGCTTCTTCATTATGGATGATGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMetPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACATGGTCGAAGGTAATCCTGGAGCTGCAAGTGGGGATGATACGGTACCATACAATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                AATTGGATCACAACCGATGTCATTTATGAGCTTGAAGGGTCTCTGTACTCCAGGTCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAGTTACCGAGTTAGCTCAAACCAACTTGTCTAGCATGGAATGCGGGCTTCCTACTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGAAGGGTCATCACATATCAATGCGAGGAGCAGGAATTTCGTTTAAACTATTCTGGA
                                                                                                                                                                                                                                              GluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAsp
                                                                                                                                                                                                                                                                                                                    AsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  {\tt PheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGly}
                                                                                                                                                                                           ATAGTTCCCCACATGACAAGG
                                                                                                                                                                                                           CTCTCTTTTTGTAAGAATTGGCTTGGACCAAAAGTGAACATAACAAGGGCTCCTCAGTC-
                                                                                                                                                                                                                                                                                                                                                                            ThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSer
                                                                                                 713 bp
F04 Developing fruit
F1650002_IIF_F04 5',
                                                                                GI:45452970
                                                                                                                                                                                                                       515
                                                                                                           mRNA sequence.
                                                                                                                        mRNA linear
flavedo at 165 DAI
                                                                                                                         DAFB
                                                                                                                           EST 19-MAR-2004
Citrus sinensis
```

408

513

564

802

488 684 468 624 448 388

477

348

357 328 297 315 237

417

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best L
Query
DB:
                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
밁
                                   á
                                                                                    밁
                                                                                                                            Ś
                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-5 (1-546) x CK939714 (1-713)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scores:
312
                                                                                                                                                                             192
                                                                                    252
                                                                                                                                                                                                                                                                      132 GAAGCCTCCGCGAAAGGCGGCGAGTTCACCGGGGACTACCCCAAGTTGTCCGGAATCATA
                                                                                                                                                                                                                         46
                                       86
                                                                                                                                66
                                                                                                                                                                                                                                                                                                              26
                                                                                                                                                                                                                                                                                                                                                             72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Uratsu,S., Baek,J., Leslie,A., Xu,J., Cook,D. and Dandekar,A. Analysis of peel specific genes in Citrus (2004)
Unpublished (2004)
Contact: Abhaya Dandekar, PhD
CAES Genome Facility
UC Davis, Department of Pomology
UC Davis, Department of Pomology
Tel: 530 752 7784
Fax: 530 752 8502
                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                ThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLysLeuSerGlyIleIle
                       ValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGlnThrAspHisProGlu 1.05
                                                                                                                  ProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThrLysLeuLeuSerAla
                                                                                                                                                                           ATACCAGGCTTTGCGTCGACTCAGCTGAGAGCATGGTCAATCCTCGACTGTCCGTACTCT
                                                                                                                                                                                                         IleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeuAspCysProTyrThr
GTGAACTGTTGGCTTAAGTGCATGACACTAGATCCTTACAATCAAACAGATAATCCCGAA
                                                                                                                                                                                                                                                                                                                                                             ACACGTCGTTTCGCTGTCGTCCTCCTCGTCGTCGTCGTTCTGCTTGGAGCCCTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                       ThrAlaSerPheThrValIle-----AlaValPhePheLeuIleCysGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 713)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       il: amdandekar@ucdavis.edu
primer: WSC-F-TCCGAGATCTGGACGAGC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              california (USA). Fruit was collected on October 22, 2003, between 8 to 9 am and stored at 4C. The flavedo tissue was dissected out of developing fruit (165 DAFB) and used to isolate RNA using Trizol reagent from Invitrogen. The cDNA Library was constructed using the SMART cDNA library Kit (Clontech). The primary library was en masse evicted and plasmid DNA containing the cDNA library was isolated from the resultant bacterial population. Plasmid DNA was then transformed into ultra competent E coli cells (XLIO Gold; Stratagene). Transformants were plated out on Q-trays (2000 cfu/tray), picked using a Qbot and archived in 384 well disches "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /lab_host="XL10-Gold"
/lab_host="XL10-Gold"
/clone lib="Developing fruit flavedo at 165 DAFB"
/clone lib="Developing fruit flavedo at 165 DAFB"
/note="Organ: Fruit; Vector: pTriplEx2; Site_1: SfiIR;
/note="Organ: Fruit; Vector: pTriplEx2; Site_1: SfiIR;
/strip: Developing citrus fruits were harvested
from trees growing in the 'Citrus variety collection' in
the Wollskill experimental orchard located in Winters,
the Wollskill experimental orchard located on October 22, 2003,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /mol_type="mRNA"
/cultivar="Washington navel orange"
/db_xref="taxon:2711"
/clone="F1650002 IIF_F04"
/eax="HermaphrodIte"
/cell_type="Falvedo"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Citrus sinensis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6.44e-93
952.50
87.85%
81.78%
32.12%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      v_stage="Developing fruit sample-collected October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              713
175
13
23
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22,
                                                                                                                                85
                                                                                                                                                                             251
                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                      19
                                                                                                                                                                                                                                                                                                                                                             131
                                                                                      311
                                                                                                                                                                                                                                                                                                                45
```

```
RESULT 9
BQ508623
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BQ508623 686 bp mRNA linear EST 07-MAR-2003 EST616038 Generation of a set of potato cDNA clones for microarray analyses mixed potato tissues Solanum tuberosum cDNA clone STMGX37 5' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2002)
On Jun 10, 2002 this sequence version replaced gi:21367492.
Onther ESTS: EST616039
Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; saterids; lamiids; Solanales; Solanaceae; Solanum.

1 (Dases 1 to 686)

Buell, C.R., Hart, A., Baker, B., Tanksley, S., Fry, W., Smart, C., Restrepo, S., Griffiths, H., van der Hoeven, R., Tsai, J. and
                                                                                                                                                                                                                                                                                                                                                            This clone can be obtained from the Univer Institute. Orders can be made through URL: http://genome.arizona.edu/orders/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Karamycheva, S.A.
Generation of a set of potato cDNA clones for microarray analyses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Solanum tuberosum (potato)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BQ508623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BQ508623.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluTrpLeuArgLeuGluIleAlaProLysHisTyrLeuLys 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGlyProSerIleValPheAlaHisSerMetGlyAsnAsnValPheArgTyrPheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluArgAspLeuTyrPheHisLysLeuLysLeuThrPheGluThrAlaLeuLysLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGGCTAATTCAATCATTGCCGCTCCATATGATTGGAGATTGTCACCATCAAAGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSerProThrLysLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACAGGTCCTCTGTCCTCAGTGTGGAAAAGAATGGGTTAAGTGGTGCGTTGAGTTTGGTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrGlyProLeuSerThrValTrpLy8GluTrpLeuLy8TrpCy8ValGluPheGlyIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeuAspProGlyTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGTGGCTAAAGTTAGAAATTCCCCCAAAACAATATATCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAGAGACCTTTATTTTCACAAACTAAAGTTGACATTTGAAACTGCCCTTAAACTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCAAGTCTCGACCTGATAGTGGTCTTTCCGCAATTACAGAACTTGATCCAGGTTATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTGGCCC
                                                                                                                                                                                                                                                                                                                                                                                         potato-array@tigr.org
/clone lib="Generation of a set of potato cDNA clones for microarray analyses mixed potato tissues" (note="Vector: pBluescript SK(-); Site 1: EcoRI; Site 2: XhoI; supplier: Combination of untreated and Phytophthora infestans-treated libraries of stolons, leaves, leaflets, axillary buds of stem explants, petioles, germinating eyes, tubers, or roots."
                                                                                                                                                                                                                                    /organism="Solanum tuberosum"
/mol_type="mRNA"
/cultivar="Kennebec or Binjte
                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                  /tissue_type="mixed tissues"
/lab_host="SOLR"
                                                                                                                                                                                            /db_xref="taxon:4113"
/clone="STMGX37"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GI:21924395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rcattagitcttgctcattcattgggtaataatgtgttttcgttactttctg
                                                                                                                                                                                                                                                                                                     . 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              551
```

Alignment Scores:

```
RESULT 10
DR914958
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
               JOURNAL COMMENT
                                                                             REFERENCE
AUTHORS
                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                           ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                       Ó
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-651-651-5 (1-546)
                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                              KEYWORDS
                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Νö
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              329
                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                            529
                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                             509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                            Hodges,S.A., Rensink,W., Buell,C.R., Nordborg,M. and Tomkins,J. Generation of ESTs from Aquilegia
                                                                                         Aquilegia formosa x Aquilegia pubescens Aquilegia formosa x Aquilegia pubescens Eukaryota; Viridiplantae; Streptophyta; Embryo Spermatophyta; Magnoliophyta; eudicotyledons; Ranunculaceae; Aquilegia.
                                                                                                                                                                                              DR914958.1 GI:71684321
EST.
                                                                                                                                                                                                                            DR914958 777 bp mRNA linear EST 02-AUG-2005
EST1106497 Aquilegia cDNA library Aquilegia formosa x Aquilegia
pubescens cDNA clone COLLG72, mRNA sequence.
DR914958
           Unpublished (2005)
Other_ESTs: EST1106496
Contact: Scott Hodges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTAGATTCGAAGACTGAGGTTGGTTACTATTTTGCACCAAGTGGGAAGCCTTATCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTAAATCCTCTAACACCTTGGGAAAGACCACCTCTCAAGAACATATTCTGCATTTATGGC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGly 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIGTCCTTTTCTGCTCGTGAAGTCTCTGACGGAACCTTTTTCAAAGCCATAAAGAATTAT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyr 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAGTTGTAGAAACTGCCCAAACCAACTTGTCTGGAATGGAATGTGGATTCCCGACACAA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeu
                                                                                                                                                                                                                                                                                                                                               GAAAGTTTTCCAGGAACGAGAACAGCAGTTTGGGAGCTTGATAAAGCAAATCAC 654
                                                                                                                                                                                                                                                                                                                                                             GluSerIleProGlyLysArgThrAlaValTrpGluLeuAspLysSerGlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                                           IleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAspSer 528
||||| |||||||||||||
ATCATTCCCAATATGACAAGTTAGCTACAATGAAGTTACATAACCTATTATGAGGATTCT 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCATGATGGCTCAGCTGTACAAGTGCATCAAAATATAGAGCATCAACATGGTGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAsp 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCTGGTTGAAGGAAACCCTGGTGCAACAAGTGGGGATGAGACGGTGCCATACCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSer 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGly 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAsp 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATCCTGACAGTGAAAGACTCTTTCACCTTTTAAAAAAGTCTTACCATGATGATCCGATT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProVal 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTCCTGGTGCAAGAATTGGCTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCA 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnPro 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTGGATTATAACAGATGTGATATATGAAATCGAAGGATCTCTGTATTCCCCGGTCAGGA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.77e-89
919.00
83.94%
73.39%
30.99%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x BQ508623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                            Embryophyta; Tracheophyta; edons; Ranunculales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160
23
35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
```

```
Department of Ecology, Evolution and Marine Biology
University of California, Santa Barbara
Santa Barbara, CA 93106, USA
Tel: 805 893 4724
Email: hodges@lifesci.ucsb.edu
Seq primer: M13 Reverse.
Location/Qualifiers
1.777
//moll-type="mRNA"
//db_xref="taxon:338618"
//clone="COllG72"
//tlssue type="mixed shoot and floral apical meristems,
flower buds, leaves and roots"
//clone lib="Aquilegia CDNA library"
//clone lib="Aquilegia CDNA library"
//clone serotic: pCMV SPORT6.1; Site_1: EcoRI; Site_2: NotI;
//clone these plants three sets of tissue were collected: 1)
Small flower buds (<10 mm) and very young inflorescences
(71 & 29% by weight respectively), 2) Medium (7-20 mm)
large (at or near anthesis) flower buds (65 & 35% by
weight respectively) and 3) Shoot apical meristems. A
fourth set of tissue was collected from seed in sand and at
approximately 1 month root tissue and leaf tissue of
various developmental stages were collected from seach
set of tissue and pooled in the following proportions:
1.5X from sets 1 & 2, 1X from sets 3 & 4. From the pooled
tocal RNA, mRNA was extracted and enriched for full-length
messages and then normalized with proprietary methods by
Invitrogen."
```

Transfer of	
Score:	916.50 Matches: 160
Percent Similarity	: 85.22% Conservative:
Best Local Similarity:	69.57%
Query Match:	30.91% Indels:
DB:	8 Gaps: 1
US-09-651-65	US-09-651-651-5 (1-546) x DR914958 (1-777)
Оу 324	GluIleProSerThrSei
Db :	2 GAPATTTCCTTCAACTCGAGGCATTGATGCTTATCCATCAATTACAGAAGTAGCACAACAG 61
0у 337	AsnMetThrSerMetGluCysGlyLeuProThrLeuLeuSer
Db 62	AATGTTTCCAGCAGGAATGTGGACTCCCTACTCAGTTATCCTTCTCTGCTAGGGA
Оу 357	AlaAspGlyThrLeuPheLysAlaIl:
Db 122	TCAGATGGAACATTATTCAGGGCTATCAAGGAATATGATCCAGA
0у 377	
pb 182	
Оу 397	ArgProProIleLysAsı
Db 242	
Qy 417	TyrTyrPheAlaProSerGlyLysProTyrProAspAsnTrpIleIleThrAspIleIle 436
Db 302	
Оу 437	37 TyrGluThrGluGlySerLeuValSerArgSerGlyThrValValAspGlyAsnAlaGly 456

Ξ

```
RESULT 11
CK260764
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       968 bp mRNA linear EEST706842 potato abiotic stress cDNA library Solanum clone POAB552 5' end, mRNA sequence.
CK260764
CK260764.1 GI:39817742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 968)
Buell,C.R., Hart,A., Zismann,V., Karamycheva,S.A. and Baker,B.
Generation of ESTs from abiotic stressed potato tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; asterids; lamiida; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: potato-array@tigr.org
Clones can be requested from the University of Arizona Genomics
Institute via http://genome.arizona.edu/orders/
Seq primer: ATT TAG GTG ACA CTA TAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr. Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2003)
Other_ESTs: EST706843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Solanum tuberosum (potato)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaValTrpGluLeuAspLysSerGlyTyr 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTTCAAGTGGGGATGAGACAGTCCCATATAATTCTCTATCATGGTGCAAGACGTGGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGAAAATGAAGGAGCTTTATTTTCAAGGTCTGGAAATTTAGTTAATGGGAATCCTGGA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGACCTAAACGTAGAGCATCATCACAATGCTGATATTGTTCCAAATATGACGAGGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGluLeuAsnValAspHisGluHisGlySerAspIleIleAlaAsnMetThrLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProIleThrGlyAspGluThrValProTyrHisSerLeuSerTrpCysLysAsnTrpLeu 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProArgValLysTyrIleThrPheTyrGluAspSerGluSerIleProGlyLysArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTCTAAAGTAAACATAACAAGGGCTCCTCAGTCTGAGCATGACGGATCTGATGTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTCGAGTAAAGTACATCACGTACTACGAAGATTCTGAAAGTCTTCCAGGAAGAACGACA
                                                                                                         /Clone lib="potato abiotic stress cDNA library"
/note="Vector: pCMVSport6.1; Site 1: EcoRI; Site 2: NotI;
note="Vector: pCMVSport6.1; Site 1: EcoRI; Site 2: NotI;
suppliar: Solanum tuberosum var. Kennebec plants were
grown from cuttings on a 16hr light/8 hr dark cycle at 25
C for 3-4 weeks. Abiotic stress conditions were applied to
four separate sets of plants. Set 1 involved saturation of
the soil with 150 mM NaCl and tissues were harvested at
following application of the sail stress (leaves: 2hr,
6hr, 12hr, 1d, 2d, and 4d; rootes:2hr, 6hr, 12hr, and 2d).
set 2 were grown under the standard conditions and then
were water stressed by withdrawal of further watering
applications from the standard of further watering
applications. Drought stressed plants were harvested after cessation of watering (leaves: 3d, 5d, and 7d; roots:3d and 5d). Set 3 were grown under the standard conditions and then were cold stressed by placement at 4 C. Cold stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d,
                                                                                                                                                                                                                                                                                                                          /tissue_type="abiotic stress treated leaf and root tissue"
/lab_host="DH10B-TonA"
                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:4113"
/clone="POAB552"
                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Solanum tuberosum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 03-AUG-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perc
Best
Quer
DB:
                       KEYWORDS
SOURCE
                                                                                                                                         BG600021
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-0
                                                             ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                                                     DEFINITION
                                                                                                                                                                                                                밁
       ORGANISM
                                                           mRNA sequence.
BG600021
BG600021.1 GI:
                                                                                                                   BG600021 792 bp
EST504916 cSTS Solanum tuberosum
       Solanum tuberosum
                       Solanum tuberosum
```

2d. Set 4 were grown under the standard conditions and then were heat stressed by placement at 35 C. Heat stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 12d and 4d and heat-stressed roots were harvested at 6 h 12 hr, 1 d, and 4d. RNA was isolated from all tissues a equal RNA from each tissue and stress was pooled to construct the cDNA library. RNA sample." hr,

		ULT 12
GluSerIleProGlyLy8ArgThrAlaValTrpGluLeuA8pLy8 543 	9 GluSerIleProGlyLyBArgTh 9 GAAAGTTTTCCAGGAACGAGAAC	52 61
IleIleAlaAsnMetThrLysAlaProArgValLysTyrIleThrPheTyrGluAspSer	9 IleIleAlaAsnMetThrLysAl 9 ATCATTCCCAATATGACAAAGTT	50
GluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHisGlySerAsp 508 		489 499
LeuSerTzpCysLysAsnTzpLeuGlyProLysValAsnIleThrMetAlaProGlnPro 488 		469 439
ThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSer 468		449 379
ASNTYPI1eI1eThrAspI1eI1eTyrGluThrGluGlySerLeuValSerArgSerGly 448 		429 319
AlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAsp 428 gragaTrcgaagaCrgaGgrTGGTTACTATTTTGCACCAAGTGGGAAGCCTTATCCTGAT 318		409 259
PheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGly 408		389 199
AspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProVal 388		369 139
LeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyr 368 ::: :::::		349 79
SerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeu 348		329 19
764 (1-968)	-5 (1-546) x CK260764	09-651-651
8 Length: 968 Matches: 160 Conservative: 21 Mismatches: 34 Indels: 0 Gaps: 0	1.02e-88 916.00 916.10\$ 44.10\$ 1milarity: 74.42\$ 30.89\$ 7	gument scores: d. No: re: cent Similarity: t Local Similarity: ry Match:

GI:13617157

mRNA cDNA clone

linear EST 07-MAR-2003 e cSTS27C13 5' sequence,

(potato)

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-651-651-5 (1-546) x BG600021 (1-792)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
밁
                         S
                                                                       밁
                                                                                              5
                                                                                                                                          밁
                                                                                                                                                                             Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Chiemingo Bougri,O., Buell,C.R., Ronning,C., Tanksley,S. and Baker,B. Unpublished (2000)
Contact: Robin Buell
The Institute for
                                                                                                                                                                                   409
                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                              369
                                                                                                                                                                                                                                                                                                                                                                                                     349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                329
361
                                449
                                                                       301
                                                                                                        429
                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons; asterids; lamiids; Solanales; Solanaceae; Solanum.

1 (bases 1 to 792)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: potato-array@tigr.org
This clone can be obtained for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             http://genome.arizona.edu/orders/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Institute. Orders can be made through URL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerValThrGluThrAlaLeuValAsnMetThrSerMetGluCysGlyLeuProThrLeu 348
                                                                                                                                                                                                                                                                                                                                                                                           LeuSerPheThrAlaArgGluLeuAlaAspGlyThrLeuPheLysAlaIleGluAspTyr 368
                         ThrValValAspGlyAsnAlaGlyProIleThrGlyAspGluThrValProTyrHisSer 468
                                                                                                                                                                   AlaHisLeuLysThrGluValGlyTyrTyrPheAlaProSerGlyLysProTyrProAsp 428
                                                                                                                                                                                                                     TTAAATCCTCTAACACCTTGGGAAAGACCACCTCTCAAGAACATATTCTGCATTTATGGC
                                                                                                                                                                                                                                           PheAsnProLeuThrProTrpGluArgProProIleLysAsnValPheCysIleTyrGly 408
                                                                                                                                                                                                                                                                                             AspProAspSerLysArgMetLeuHisGlnLeuLysLysLeuTyrHisAspAspProVal 388
                                                                                                                                                                                                                                                                                                                                                                  TIGTCCTTTTCTGCTCGTGAAGTCTCTGACGGAACCTTTTTCAAAGCCATAAAGAATTAT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGTTGTAGAAACTGCCCAAACCAACTTGTCTGGAATGGAATGTGGATTCCCGACACAA 60
AATCTGGTTGAAGGAAACCCTGGTGCAACAAGTGGGGATGAGACGGTGCCATACCATTCC
                                                                                        AsnTrpIleIleThrAspIleIleTyrGluThrGluGlySerLeuValSerArgSerGly 448
                                                                                                                                                GTAGATTCGÁAGACTGAGGTTAGTTATTTTGCACCÁAGTGGGAAGCCTTATCCTGAT 300
                                                                     AATTGGATTATAACAGATGTGATATATGAAATCGAAGGATCTCTGTATTCCCGGTCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Institute for Genomic Research
2 Medical Center Dr, Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            primer: M13F-R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="cSTS"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
/NOI; Various sizes of sprouting eyes (2mm to 15mm) were
taken from tubers. The tubers were incubated at 26C in the
dark for 2-3 weeks prior to sprouting. The eyes were
frozen in liquid nitrogen immediately upon removal from
tubers."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:4113"
/clone="cSTS27C13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tissue_type="sprouting eyes from tubers"/tev_stage="12-14 weeks post harvest"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9.17e-88
906.00
83.56%
73.06%
30.56%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from the University of Arizona Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         792
160
23
35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chiemingo, A.,
                                                                         360
                                                                                                                                                                                                                       240
   420
```

```
RESULT 13
BI422757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
밁
                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                               US-09-651-651-5 (1-546) x BI422757
                                                                                                               Query Match:
                                                                                                                                  Best Local Similarity:
                                                                                                                                                                    Score:
                                                                                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         വാ
                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              469
49
                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lycopersicon esculentum
Lycopersicon esculentum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledon
asterids; lamiids; Solanales; Solanaceae; Solanum; Lycopersicon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Generation of ESTs
Unpublished (1999)
Contact: CUGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alcala,J., Vrebalov,J., White,R., Matern,A.L., Vision,T., Holt,I.E., Liang,F., Upton,J., Craven,M.B., Bowman,C.L., Ronning,C.M., Fraser,C.M., Martin,G.B., Tanksley,S.D. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  asterids; lamiids; 1 (bases 1 to 704)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BI422757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST533423 tomato callus, cLEC71F15 5' end, mRNA se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: http://www.genome.clemson.edu/orders/index.html.
    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Clemson University Genomics Institute Clemson University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BI422757.1 GI:15197439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Giovannoni, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100 Jordan Hall, Člemson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluHisAspGlySerAspValHisValGluLeuAsnValAspHisGluHis-GlySerAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuSerTrpCysLysAsnTrpLeuGlyProLysValAsnIleThrMetAlaProGlnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCGTCATTTTCATTCTCCTAGCT-----ACCGCCGGTAACCTTGGCGGTGAGTTC
                          IleAlaValPhePheLeuIleCysGlyGlyArgThrAlaValGluAspGluThrGluPhe 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGAAAGTTTTCCAGGAACGAGAACAGCAGTTTGGGAAGCTTGATAAAGCAAATCAC 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rGluSerIleProGlyLy8ArgThrAlaValTrpGluLeuAspLy8SerGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCTCCTGGTGCAAGAATTGGCTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCA 480
                                                                                                                                                                                                                                                   /clome_lib="tomato callus, TAMU" /clome_lib="tomato callus, TAMU" /note="Vector: pBlueScript SK(-); Site_1: EcoR1; Site_2: Xhol; Supplier: Glovannoni laboratory; <math>CLEC - Cotyledons of seedlings 7-10 days post-germination were excised, cut at both ends and placed on MS medium with no selection. Mixed callus was harvested at 25 and 40 days and included undifferentiated masses. Tomato Callus EST Library"
                                                                                                                                                                                                                                                                                                                                                                        /dev_stage="25-40 days old"
/lab_host="XL1-Blue MRF/"
                                                                                                                                                                                                                                                                                                                                                                                                    tissue_type="callus"
                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:4081"
/clone="cLEC71F15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/cultivar="TA496"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Lycopersicon
                                                                                                                1.77e-86
893.50
71.85%
65.56%
30.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from tomato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence
                                                                 (1-704)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Solanum lycopersicum)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       704 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SC 29634, USA
                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                  Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lycopersicon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  callus tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            esculentum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                  704
177
17
25
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eudicotyledons;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 16-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ahn,S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     488
     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
```

Ş 밁

Ş 밁 S 밁

밁

밁 δ á

δ

```
RESULT 14
AU237072
LOCUS
                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                      ACCESSION
   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                              675
                                                                                                                                                                                                                                                                                                                                                                                                               275
                                                                                                                                                                                                                                                                                                                                                                                                                                                    615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ü
Seki,M., Narusaka,M., Ishida,J., Kamiya,A., Satou,M., Nakiyama,K., Enju,A., Oono,Y., Sakurai,T., Carninci,P., K. Itoh,M., Ishii,Y., Arakawa,T., Shibata, Shinagawa,A., Muramatsu,M., Hayashizaki,Y. and Shinozaki,K. Large scale analysis of Arabidopsis full-length cDNA Unpublished (2002)
                                                                                                     Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 596)
                                                                                                                                                                                                                 AU237072
AU237072.1 GI:19876241
EST.
                                                                                                                                                                                                                                                                                     AU237072 RAFL15 Arabidopsis thaliana cDNA clone RAFL15-47-A08 5',
                                                                                                                                                                                                                                                                     mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuAspProTyrAsnGlnThrAspHisProGluCysLysSerArgProAspSerGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValTrpLeuAspThrThrLysLeuLeuSerAlaValAsnCysTrpPheLysCysMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGAGCATGGTCAATATTAGACTGCCCTTATTCTCCTCTCGATTTCAATCCTCTCGATTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValSerGluGlyThrAlaArgLeuLeuSerAsnSerPheAlaSerSerLeuTrpLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysHisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCATTAGGTÀACAATGTCTTTAGATACTTCTTGGAGTTGGAAATTAGAGATTGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----ACTTTTGAAACTGCTCTTAAACTTCGTGGTGGACCTTCAATAGTTTTCGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 {\tt GluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValPro}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrValTrpLys 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGGATCCTTACAATCAAACAGATCACAACGAGTGCAAGTCTCGACCTGATAGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCTGGCTCGACACTACTAAACTTCTTTCTGCTGTAAATTGCTGGTTGAAGTGTATGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgAlaTrpSerIleLeuAspCysProTyrThrProLeuAspPheAsnProLeuAspLeu
                                                                                                                                                                                                                                                                                                                                                                                CCATTTTCAAATAT-TGTACCACTGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                              ProPheSerLysAsnCysLysGlyAspAsn 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAGAGTATGGTCGATGGTTAGACGATCACATTCATGCCTATTTTTGCTGTTGGAGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCAATAACGGAGCTTGATCCTGGTTATATAACAGGCTA----
                                                                                                                                                                                                                                                                                                                                                                                703
                                                                                        Satou, M., Nakajima, M.,
                                                                        Kawai,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54
                                                                                                                                                                                                                                                                                                                                                                                                                                                      674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74
```

S 밁 δ B δ В 5 밁 δ

á

RESULT

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                       밁
                                                                                                                                                  Ś
                                                                                                                                                                                      밁
                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                        S
                                                           밁
                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-651-651-5 (1-546) x AU237072 (1-596)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Мо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scores:
                                                                                                                                                                                        410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110
590
                             161
                                                            530
                                                                                          141
                                                                                                                           470
                                                                                                                                                        121
                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                    350
                                                                                                                                                                                                                                                                                                                   290
                                                                                                                                                                                                                                                                                                                                                                                230
                                                                                                                                                                                                                                                                                                                                                                                                                                              170
                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                             41
                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Motoaki Seki
Plant Functional Genomics Research Group
RIKEN Genomic Sciences Center
3-1-1 Koyadai, Tsukuba, Ibaraki 305-0074,
Tel: 81-298-36-4359
Fax: 81-298-36-9060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: mseki@rtc.riken.go.jp
An Arabidopsis full-length conA library was constructed essentially
an Arabidopsis full-length conA library was constructed essentially
as reported previously (Seki et al., 1998).cDNA cleaved with BamHI
and XhoI was ligated to modified Lambda FIC-I vector (Carninci et
al., submitted for publication) digested with BamHI and SalI. This
clone is in a modified pBluescript vector. Please visit our web
site (http://www.gsc.riken.go.jp/e/plant/index _e.html) for further
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            details.
                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerGlyIleIleIleProGlyPheAlaSerThrGlnLeuArgAlaTrpSerIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGlyAlaAsnSerLysSerValThrAlaSerPheThrValIleAlaValPhePheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleCysGlyGlyArgThrAlaValGluAspGluThrGluPheHisGlyAspTyrSerLys
CCAACC
                             ProThr 162
                                                            GTTGAGTTTGGTNTAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATNGTCA
                                                                              ValGluPheGlyIleGluAlaAsnAlaIleValAlaValProTyrAspTrpArgLeuSer
                                                                                                                           GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTNAAGTGGTGT
                                                                                                                                             AspProGlyTyrIleThrGlyProLeuSerThrValTrpLysGluTrpLeuLysTrpCys
                                                                                                                                                                                        ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                             ThrAspHisProGluCysLysSerArgProAspSerGlyLeuSerAlaIleThrGluLeu
                                                                                                                                                                                                                                                      AAGCTTCTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                       LysLeuLeuSerAlaValAsnCysTrpPheLysCysMetValLeuAspProTyrAsnGln
                                                                                                                                                                                                                                                                                                                     GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                     AspCysProTyrThrProLeuAspPheAsnProLeuAspLeuValTrpLeuAspThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="mixture
/lab_host="DH10B"
/clone_lib="RAFL15"
/note="Site_1: BamHI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Arabidopsis
/mol_type="mRNA"
/db_xref="taxon:3702"
/clone="RAFL15-47-A08"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.62e-85
877.00
98.77%
98.77%
29.58%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               e
f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              silique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       00201596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 flower"
                                                                                                                                                                                           469
                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                      409
                                                                                                                                                                                                                                                                                                                     349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40
                                                                                               160
                                                                                                                            529
                                                                                                                                                            140
                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                   289
                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
```

	E G G G G	ORIGIN	FEATURES BOUTCE	REFERENCE AUTHORS TITLE JOURNAL COMMENT	B1922233 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM
15 IleAlaValPhePheLeuIleCysGl 15 IleAlaValPhePheLeuIleCysGl	Scores: 7.17e-81 milarity: 72.24% Similarity: 67.35% h: 28.38%	/orliver="Type="Editor Estatement" /mol type="MRNA" /cultiver="TA496" /db_xref="taxon:4081" /clone="cleC76918" /dev_stage="25-40 days old" /dev_stage="25-40 days old" /dev_stage="25-40 days old" /lab_host="XL1-Blue MRP'" /clone lib="tomato callus" /note="vector: pBluescript SK(-); Site_1: EcoRI; Site_2: XhoI; supplier: Boyce Thompson Institute; sequencing: The Institute for Genomic Research; cLEC - Cotyledons of seedlings 7-10 days post-germination were excised, cut at both ends and placed on MS medium with no selection. Mixed callus was harvested at 25 and 40 days and included undifferentiated masses. Tomato Callus EST Library"			B1922233 632 bp mRNA linear EST542136 tomato callus Lycopersicon esculentum cD cLEC76P18 5' end, mRNA sequence. B1922233 B1922233.1 GI:16218653 BST. Lycopersicon esculentum (Solanum lycopersicum) Lycopersicon esculentum Eukaryota; Viridiplantae; Streptophyta; Embryophyt

	235 LeuLeuGlySerValGluAlaIleLysSerThrLeuSerGlyValThrPheGlyLeuPro	215 LyshisTyrLeuLysTrpLeuAspGlnHisIleHisAlaTyrPheAlaValGlyAlaPro	195 SerMetGlyAsnAsnValPheArgTyrPheLeuGluTrpLeuArgLeuGluIleAlaPro	175 LysLeuThrPheGluThrAlaLeuLysLeuArgGlyGlyProSerIleValPheAlaHis	380	155 TyrAspTrpArgLeuSerProThrLysLeuGluGluArgAspLeuTyrPheHisLysLeu 174	380	135 GluTrpLeuLysTrpCysValGluPheGlyIleGluAlaAsnAlaIleValAlaValPro 154	340 TCTGCAATAACGGAGCTTGATCCTGGTTATATAACAGGCTA380	115 SerAlaIleThrGluLeuAspProGlyTyrIleThrGlyProLeuSerThrV.	280 TIGGATCCTTACAATCAAACAGATCACAACGAGTGCAAGTCTCGACCTGATAGTGGCCTT
						lyrPheHisLysLeu	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	[levalAlavalPro		erThrValTrpLys	
;	254 614	234 554	214 494	194 434	380	174	380	154	380	134	339

B 8

5 g 5

유 성

음 성 음

Search completed: November 22, 2005, 13:50:36 Job time : 4170 secs

B 8 B

Ş

용 성 용

THIS PAGE BLANK (USPTO)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
          n
                                                                                                                                                0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                               10
11
12
13
14
14
17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenEmbl:*

1: 9b ba:*
2: 9b htg
3: 9b in
4: 9b on
5: 9b o
6: 9b o
7; 9b y
9: 9b
                            1641
911.8
271.8
271.8
271.8
271.8
271.8
271.8
271.8
271.8
271.8
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
113.4
1
                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d. No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length: 0 length: 2000000000
          100.0
15.6
16.6
16.6
16.6
16.6
16.6
10.7
7.2
7.2
6.9
6.9
6.9
6.9
6.9
6.9
6.9
                                                                                                                                                                                                                                                                                                                                                                                                   Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-4
1641
1 atgggagcgaattcgaaatc.....ttgataaagtgggtattaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4708233 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          November
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gb_in:*
gb_om:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gb_pat:*
gb_p1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_ba:*
gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_pr:*
gb_ro:*
gb_sts:*
gb_sts:*
gb_un:*
gb_vi:*
                            6 · 3896
7 119914
7 328
8 2 93398
9 118192
9 149723
9 158971
7 709
7 709
7 709
7 709
6 356
                                                                                                                                                                                                                                                                                                                                                                                                   Length DB
          110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'ov:
                                                                                                                                                                                                                                                                                                                         1641
2609
3896
                                                                                                                                                                                                                                                                                    3896
                                                                                                                                                                                                                                                                                                        3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9, 2005, 01:39:36; Search time 7207 Seconds (without alignments)
11033.025 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24227607955 residues
BD271633

AX037587

AX037586

AC003027

AX090328

AP006356

AP004120

AP005691

AP004882

BD271624

BD271634

BD271634

BD271634

AX037588

AX037588

AX037588

AX037588

AX037588

AX037588

AX037588
                                                                                                                                                                                                                                                                                                                         AX090311
AF493159
BD271623
                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.1.6
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9416466
                                                           AX090311 Sequence
AF493159 Medicago
BD271623 Novel cla
BD271633 Novel cla
AX03768 Sequence
AX03768 Sequence
AX03768 Sequence
AP006356 Lotus cor
AP004120 Oryza sat
AP00488 Oryza sat
AP00488 Oryza sat
AP00488 Oryza sat
BD271624 Novel cla
BD271634 Novel cla
AX037588 Sequence
AX037589 Sequence
AX037507 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                   Description
          Continuation (20
                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1641
                          S
                                                               밁
                                                                                                S
                                                                                                                                          밁
                                                                                                                                                                      5
                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
```

0000)	ი	o o
4444		332255 30987 31098	20 22 23
43.4 43.4 43.4	4444444444467 007777777777 4444444600	444444 000000 044444444444444444444444	59 57.8 52.6
2.6 110000 8 2.6 110000 8 2.6 110000 8	,	3.0 1986 6 3.0 1986 6 3.0 1986 6 3.0 1986 6 3.0 1986 6 3.0 1986 6	111
ACC16819_00 AE016819_00 AE016819_01	0	BD271616 BD271625 BD271626 BD271626 AX037597 AX037597 AX037597 AX090382 AX090382 AX655393	
Continuation (2 of	271623 S.cerevisia X77395 S.cerevisia AX655393 Sequence BD271617 Novel cla BD271627 Novel cla AX037579 Sequence AX037599 Sequence AX037599 Sequence AX037568 Partius norv	BD271616 Novel cla BD271625 Novel cla BD271626 Novel cla BD271626 Novel cla AX037577 Sequence AX037597 Sequence AX037597 Sequence AX090382 Sequence AX655393 Sequence	tion () tion () tion () Swiet

DNA linear PAT 21-MAR-2001

ALIGNMENTS

REFERENCE AUTHORS TITLE SOURCE ORGANISM RESULT 1
AX090311
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS JOURNAL Plant sterol acyltransferases
Patent: WO 0116308-A 4 08-MAR-2001;
MONSANTO COMPANY (US) Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magmoliophyta; eudicotyledons; core eudicots; AX090311 1641 bp Sequence 4 from Patent W00116308. AX090311.1 GI:13444180 Lassner, M. and van Eenennaam, A. rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis Location/Qualifiers

source /organism="Arabidopsis thaliana" /mol_type="unassigned DNA" /db_xref="taxon:3702"

Query Match Best Local S Matches 1641 atch 100.0%; Score 1641; cal Similarity 100.0%; Pred. No. 0; 1641; Conservative 0; Mismatches 181 121 121 61 ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG 120 61 ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG 120 Н GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT CTATCGGGTATAATCATTCCGGGATTTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT 180 CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT B 9 0; Length 1641; Indels 0; Gaps 60 240 60

```
1021
                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTACGAAACTGAA 1320
                                                                                                                                                                                   GCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                        CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAG 1140
                                                                                                                                                                                                                                 ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                                                                                                                             CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTTCAAAGAATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                          AAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATA 1200
                                                                                                                                        CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                      GCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTTCCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                       CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTATGCCATTTTTCAAAGAATTGC
                                                                                                                                       1140
                                                                                                                                                                                                                                                      1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                 1020
                                                                                                                                                                                                                                                                                960
                                            1260
                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
```

B 8 B 8 B 8 B

8 8 8

밁

중 음 원

8 8 8 8

DLYFHKLKLTFETAFKLRGGPSLVFGHSLGNNVFRYFLEWLKLEIAPKHYIQWLDQHI

음 성 음 성 음

8 8 8 8 8 8 8

Qy 1381 GATGAGACGTTACCTCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT 1440 1381 GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT 1440 Qy 1441 AACATAACAATGGCTCCCCAGCCAGAACAACAGATGGAACGAAC
1381 GATGAGACGGTACCCTATCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCACTCTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
1381 GATGAGACGGTACCCCTATCACTCTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
Db 1321 GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG 1380

ORIGIN

```
Query Match
Best Local Similarity
Matches 1167; Conserv
           948
                                                 948
                                                                                     888
                                                                                                                                                                                                  828
                                                                                                                                                                                                                                                                                                                                                                                                                    648
                                                                                                                                                                                                                                                                                                                                                                                                                                                          885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                            828
                                                                                                                                                                                                                                  768
                                                                                                                                                                                                                                                                       768
                                                                                                                                                                                                                                                                                                         708
                                                                                                                                                                                                                                                                                                                                           708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTTAAGTGGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGA
TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                            TGGTTCTGTTGAGGCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTC
                                                                                                                                                                                                                                                                                                                                                                TTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTTGCCCATTCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATTAAGTGGTGTATTGAATTTGGCATAGAAGCTAATGCAATAATTGCTGTTCCTTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTAGACACCACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATIGGTGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGGACCTCGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGC
                                                 --- AGGTACCAATACATATCACTGTGATGAGGAGGAGTTTAAGTCAAACTTTTCTGGATG
                                                                      TTCCAAGTACTGTAGAGCAAGTAATAAATATTGGAAGCATTTTTCTGGAGGAAAGCAAGT
                                                                                                                                                                                                                 TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                       GGGTGCAACTGAAACCATTGAAGCAACACTTTCTGGATTCACATTTGGTCTTCCAGTATC
                                                                                                                                                                                                                                                                                                                                             TTATATCCAATGGCTGGATCAACATATTCATGCTTATTTTGCTGTTGCTGCTCCACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                      GGGTAATAACGTTTTTCGTTATTTCTTGGAGGTGGTTGAAGCTAGAAATTGCACCAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGGAGACTGTCACCATCCATGCTTGAAGAACGAGACCTTTACTTTCATAAGCTTAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGGAGATTGTCACCAAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCTTACAATCAAACAGATCATCCTGATTGTAAATCCCGTCCTGATAGCGGTCTTTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCGACACCAACCTTCTTTCTGCTGTGAATTGTTGGCTTAAGTGCATGTTGTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGTCTATTCTTGACTGCCCTTACTCTCCGCTAGATTTCAATCCTCTCGATTTGGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HAYFAVAAPLLGATETIEATLSGFTFGLPVSEGTARLMFNSFASSLMMMPFSKYCRAS
MKYWKHFSGGKQVGTNTYHCDEEEFKSBVESGWFYKIINIEIPSTRGFEAYFSFSSIPE
ANLSGMEGGLPTQLSFSAREIADGSFFKAIEDVDDSKRLLYQLEKSYLDEDFULNUT
PMDRPPIKNVFCIYGSNSKTKVGYYFAPSGKPYPDNWIITDVVYEYEGSLVTRSGNLV
EGNPGSISGDETVPYNSLSWCKNWLGFKVNITRAPQSERIDGSVVQIIDLNVEHHYGDDI
VPNMTRFPRYKYITYYEDSISSLFGKRTAVWELDKANHRUNVRSSVLMREKHLEMWRDI
HDAKSEFYTKAKRGPLRDEDCYWDYGKARCAWPEYCEYRYVFGDVHLGQSCRLRYTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55.6%;
75.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 911.8; I
Pred. No. 1.9e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        911.
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ); DB 8;
..9e-253;
les 352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2609;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                 1004
                                                                                     947
               886
                                                                                                                          947
                                                                                                                                                                                              887
                                                                                                                                                                                                                                  827
                                                                                                                                                                                                                                                                     827
                                                                                                                                                                                                                                                                                                         767
                                                                                                                                                                                                                                                                                                                                             767
                                                                                                                                                                                                                                                                                                                                                                                707
                                                                                                                                                                                                                                                                                                                                                                                                                    707
                                                                                                                                                                                                                                                                                                                                                                                                                                                          647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227
```

밁

GCCAACAAAGATAATCAACATTGAAATTCCTTCAACCCGTGGATTTGAAGCATATCCCTC

중 유 ঠ

8 8 8 8 8 8 8

중 음 중 음

중 유

S 문 중 음

S 밁 S 문 S 밁

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
BD271623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                               POCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                           JOURNAL
Dahlqvist,A., Stahl,U., Lenman,M., Banas,A., Ronne,H. and Stymne,S.

Novel class enzyme in biosynthesis pathway of triacrylglycerol
production and recombinant DNA molecule encoding the enzyme

Patent: JP 2002541783-A 8 10-DEC-2002;

BASF PLANT SCIENCE GMBH
OS Arabidopsis thaliana (thale cress)
PN JP 2002541783-A/8
PD 10-DEC-2002
PF 28-MAR-2000 JP 2000609586
PF 28-MAR-2000 JP 2000609586
PR 01-APR-1999 EP 99106655.4,10-JUN-1999 EP 99111321.8 PR
07-FEB-2000 US 60/180687
PI ANDERS DAHLQVIST,ULF STAHL, MARIT LENMAN, ANTONI BANAS PI
,HANS RONNE, STEN STYMNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    989
                                                                                                                                                                                                  BD271623.1 GI:33081391
JP 2002541783-A/8.
Arabidopsis thaliana (thale
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                             BD271623 3896 bp DNA linear PAT 17-JUL-2003 Novel class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme.
                                                                                                                                                                                                                                                                                                                               production
BD271623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAATTCAAAGACAAAGGTTGGTTACTACTTTGCCCCTAGCGGCAAGCCGTATCCTGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCATCTAAAGACAGAGGTTGGTTATTACTTTTGCCCCAAGTGGCAAACCTTATCCTGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAATCCACTTACACCTTGGGATCGGCCACCAATAAAAAACGTGTTCTGCATTTATGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACACGATGGCTCAGATGTACAGATTGATTTGAATGTGGAACATCACTATGGAGATGATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACACGATGGAAGCGACGTACATGTGGGAACTAAATGTTGATCATGAGCATGGGTCAGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTGGTTGAAGGGAACCCTGGATCTATAAGTGGCGATGAGACGGTTCCATACAACTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGATCATTACAGATGTCGTTTATGAGTACGAAGGATCTCTAGTCACAAGGTCAGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGGTCTGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCTGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCTTTCTCAGCTCGTGAAATAGCGGATGGCTCCTTTTTCAAGGCAATTGAAGATTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --TTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCCACCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1226
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                  RESULT 4
BD271633
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 375; Conserv
                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bource
BD271633.1 GI:33081401

JP 2002541783-A/18.

Arabidopsis thaliana (thale cress)

Arabidopsis thaliana

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

E 1 (bases 1 to 3896)

S Dahlqvist, A., Stahl, U., Lenman, M., Banas, A., Ronne, H. and Stymne, S.

Novel class enzyme in biosynthesis pathway of triacrylglycerol

production and recombinant DNA molecule encoding the enzyme

Patent: JP 2002541783-A 18 10-DEC-2002;

BASF PLANT SCIENCE GMBH
                                                                                                                                                                                                                                                                                                                                                 2207
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PC C12N15/09,A01H5/00,C12N1/19,C12N5/10,C12N9/10,C12P7/64/// PC (C12P7/64,C12R1:645),(C12P7/64,C12R1:91),C12N15/00,C12N5/00 CC Novel class enzyme in biosynthesis pathway of triacrylglycerol of triacrylglycerol cc production CC and recombinant DNA molecule encoding the enzyme FH Key
                                                                                                                                                                                                                               BD271633 3896 bp DNA linear PAT 17-JUL-2003 Novel class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme.
                                                                                                                                                                                                                     production
BD271633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77
                                                                                                                                                                                                                                                                                                                                                 GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                                                                                        GAAGACTATGACCCAGATAGCAAGAGGGTTTACACCAGTTAAAGAAGT 1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGTATCCATCAGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTTCCTTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACAAATATTATTAACATTGAAATTCCTTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         production and recombinant DNA molecule Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
1. .3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Arabidopsis | /mol_type="genomic DNA" /db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cress),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 271.8; |
Pred. No. 2.8e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism='Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .8e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 3896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thaliana
                                                                                                                                                                                                                                                                                                                                                 2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (thale
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               947
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
```

밁 δ 유

유

밁 δ 밁 S 밁 S 밁 δ 밁 δ

```
VERSION
KEYWORDS
SOURCE
                                                                                                          RESULT 5
AX037587
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 375
                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OS Arabidopsis thaliana (thale cress)

PN JP 2002541783-A/18

PD 10-DEC-2002

PF 28-MAR-2000 JP 2000609586

PR 01-APR-1999 EP 99106656.4,10-JUN-1999 EP 99111321.8 PR
07-PEB-2000 US 60/180687

PI ANDERS DAHLQVIST,ULF STAHL,MARIT LENMAN,ANTONI BANAS PI
,HANS RONNE,STEN STYWNE
PC C12N15/09,A01H5/00,C12N1/19,C12N5/10,C12N9/10,C12P7/64// PC
(C12P7/64,C12R1:645),(C12P7/64,C12R1:91),C12N15/00,C12N5/00 CC

Novel class enzyme in biosynthesis pathway

of triacrylglycerol

CC and recombinant DNA molecule encoding the enzyme FH Key

CC and recombinant DNA molecule encoding the enzyme FH Key
                                                                                                                                                                                                                                       2207
                                                                                                                                                                                                                                                                         1096
                                                                                                                                                                                                                                                                                                         2147
                                                                                                                                                                                                                                                                                                                                            1036
                                                                                                                                                                                                                                                                                                                                                                                2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                       2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1787 TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                   988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    888 GAAAGATAAGCGCGTATACCACTGTGATGAAGAGGAATATCAAATCAAAATATTCTGGCTG 947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 al Similarity
375; Conser
                                                                                       AX037587
Sequence 11
AX037587
AX037587.1
Arabidopsis thallana (thale cress)
Arabidopsis thallana
Bukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7 T
                                                                                                                                                                                                                                                          GAAGACTATGACCCAGATAGCAAGAGGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                     GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                                                 CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAAGCAATA 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTATGCCATT
                                                                                                                                                                                                                                                                                                           CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA
                                                                                                                                                                                                                                                                                                                                                                                GTGTATCCATCAGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGACAAATATTATTAACATTGAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               production and recombinant DNA molecule Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Arabidopsis (
/mol_type="genomic DNA"
/db_xref="taxon:3702"
                                                                                         GI:11227006
                                                                                                                             from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16.6%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                   GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cress) '
                                                                                                                             Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism='Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 271.8; DB 6
Pred. No. 2.8e-67;
0; Mismatches 2
                                                                                                                           3896 bp
WO0060095.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3896
                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thaliana
   eudicots,
                                                                                                                                                                                                                                                                       1144
                                                                                                                                                                                                                                     2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92;
                                                                                                                                               PAT
                  Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (thale
                                                                                                                                               16-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          887
                                                                                                                                                                                                                                                                                                                                                                                2146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               827
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                         LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                              RESULT 6
AX037606
                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                 음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 375; Conserv
                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                 2207
                                                                                                                                                                                                                                                                                                               2147
                                                                                                                                                                                                                                                                                                                                        1036
                                                                                                                                                                                                                                                                                                                                                                2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1847
                                                                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        768
                                                                                                                                                                         AX037606
Sequence
AX037606
Banas,A., Stahl,U., Stymne,S., Lenman,M., Ronne,H. and Dahlqvist, A new class of enzymes in the biosynthetic pathway for the production of triacylglycerol and recombinant dna molecules encoding these enzymes Patent: WO 0060095-A 30 12-OCT-2000; BANAS ANTONI (PL); STAHL ULF (SE)
                                                                                   Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  encoding these enzymes
Patent: WO 0060095-A II 12-OCT-2000;
BASF PLANT SCIENCE GWEH (DE); BANAS
STYMME STEN (SE); LENMAN MARIT (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Banas,A., Stahl,U., Stymme,S., Lenman,M., Ronne,H. and Dahlqvist,A. A new class of enzymes in the biosynthetic pathway for the production of triacylglycerol and recombinant dna molecules
                                                                                                                                                               AX037606.1 GI:11227020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rosids;
                                                                                                                                                                                                                                                                           GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                                                                              ------GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA 887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTATGCCATT
                                                                                                                                                                                                                                                              GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                              CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA
                                                                                                                                                                                                                                                                                                                              CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGACAAATATTATTAACATTGAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                               ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     eurosids
                                                                                                                                                                                      30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Arabidopsis thaliana'
/mol_type="unassigned DNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                      from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16.6%;
                                                                                                                                                                                        Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  II; Brassicales; Brassicaceae; Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
Pred.
                                                                                                                                                                                        3896 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             271.8; DB 6;
No. 2.8e-67;
smatches 2;
                                                                                                                                                                                                   DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ANTONI (PL) ; ; RONNE HANS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; STAHL ;
                                                                                                                                                                                                                                                                                      1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92;
                                                                                                                                                                                                   PAT 16-NOV-2000
                                                                                                                                                                                                                                                                                                               2206
                                                                                                                                                                                                                                                                                                                                                                                                               2086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
                                                               JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                 RESULT 7
AC003027
LOCUS
                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 375
   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                               2207
                                                                                                                                                                                                                                                                                                                                                                                      1096
                                                                                                                                                                                                                                                                                                                                                                                                                                       1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STYMNE
                                                                                                                                                                                                                                                  AC003027.1
                                                                                                                                                                                                                                                                                                   AC003027
                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SE)
```

```
2 (bases 1 to 119914)

Pederapiel, N.A., Palm, C.J., Conway, A.B., Kurtz, D.B., Conway, A.R., Au, M., Araujo, R., Buehler, E., Dewar, K., Feng, J., Kim, C., Li, Y., Oji, O., Osborne, B.I., Shinn, P., Sun, H., Toriumi, M., Vyotskaia, V., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                         1 (bases 1 to 119914)
1 (bases 1 to 119914)
1 (bases 1 to 119914)
1 (rederspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F., Altafi, H., Araujo, R., Huizar, L., Rowley, D., Buehler, E., Dunn, P., Altafi, H., A., Kremenetskaia, I., Kim, C., Lenz, C., Li, J., Liu, S., Luros, S., Schwartz, J., Shinn, P., Toriumi, M., Vysotskaia, V.S., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                    Yu, G., Bcker, J., This Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAGACTATGACCCAGATAGCAAGAGGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGACAAATATTAATTAACATTGAAATTCCTTCCACTAGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGGACTCTTTTCAAAGCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTTCCTTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGACAAATATTATTAACATTGAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAAGATAAGCGCGTATACCACTGTGATGAAGAGGAATATCAAATCAAAATATTCTGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGTATCCATCAGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Arabidopsis
/mol_type="unassigned I
/db_xref="taxon:3702"
(22-OCT-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:4079614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (SE) ; LENMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119914 bp
chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 271.8; DB 6;
Pred. No. 2.8e-67;
0; Mismatches 2;
Biochemistry, Stanford University/DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MARIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BAC F21M11 genomic sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; RONNE HANS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLN 30-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; DAHLQVIST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           827
```

RKQVLRFCEECPLERAKKVEILEPCKGHLKRGAIKECWFKCGCTKRCGNRVVQRGMHN

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genes with similarity to proteins in the databases are described as 'putative', '-like' or 'similar to'. Genes that have BST similarity but no significant protein similarity are described as 'unknown proteins'. Genes that are amoutated only on gene prediction software are described as 'hypothetical proteins'. The software programs used to predict genes include: Grail (Informatics Group, Oak Ridge National Laboratory, http://compbio.ornl.gov/section/index.html), GENSCAN (Chris Burge, http://gnomic.stanford.edu/~chris/GENSCANW.html), Fexa (V.Solovyev & A.Salamov, Sanger Centre, http://genomic.stanford.edu/~chris/GENSCANW.html), and NetPlantGene (S.M. Hebsgaard, et al., CBS, Technical University of Denmark,http://www.cbs.dtu.dk/NetPlantGene.html).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Direct Submission
Submitted (30-DEC-1998) DNA Sequencing and Technology Center,
Submitted (30-DEC-1998) EALIFORNIA Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             On Dec 30, 1998 this sequence version replaced gi:2734094. Bases 1-9262 of clone F21M11 overlap with bases 68998-78259 of 'TAMU' BAC clone F20D22 (AC002411) and bases 119525-119914 of clone F21M11 overlap with bases 1-389 of 'TAMU' BAC clone F21B7 (AC002560).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
Submitted (30-JAN-1999) DNA Sequencing and Technology Center,
Submitted University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Federspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F., Altafi, H., Araujo, R., Huizar, L., Rowley, D., Buehler, E., Dunn, P., Gonzalez, A., Kremenetskaia, I., Kim, C., Lenz, C., Li, J., Liu, S., Luros, S., Schwartz, J., Shinn, P., Toriumi, M., Vyotskaia, V., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Altafi, H., Araujo, R., Huizar, L., Rowley, D., Buehler, E., Dunn, P. Gonzalez, A., Kremenetskaia, I., Kim, C., Lenz, C., Li, J., Liu, S., Luros, S., Schwartz, J., Shinn, P., Toriumi, M., Vyotskaia, V., Walker, M., Yu, G., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequencing and Technology Center, 855 California Avenue, Palo Alto, CA 94304, USA 3 (bases 1 to 119914)
Federspiel, N.A., Palm, C.J., Conway, A.B., Conn, L., Hansen, N.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 119914)
/codon_start=1
/proteIn_id="AAD10665.1"
/proteIn_id="AAD10665.1"
/db_xref="og: 4.204284"
/db_xref="og: 4.204284"
/translation="MARNIRIKKACDAMKLLGISETKTRAFLRKLLKTYENNWDFIEE
/translation="MARNIRIKKACDAMKLLGISETKTRAFLRKLLKTYENNWDFIEE
DAMEDDFFPLKRRLRSRRGRASSSSSSSSYNNEDLKTQPEEEDEDDGVPTELPPLKRY
VRRNGERGLAMTVYXNNASPSSSSSSSSSYNNEDLKTQPEEEDEDDDGVPTELPPLKRY
VRRNGERGLAMTVYXNNASPSSSSSSSSSYNNEDLKDLDTTAMDVSPSSAIGES
EPNIDHKPVISDTGNCSAPMLEMGKSNIHVQEWDWETKDILNDTTAMDVSPSSAIGES
SEHKVAAASVELASSTSGEAKICLSFAPATGETTNLHLPSMEDLARAMEEKCLKSYKI
VHPEFSVLGFMKDMCSCYIDLAKNSTSQLLETETVCDMSKAGDESGAVGISMPLVVVP
ECEISGDGWKAISMKDITAGEENVEIGWNNEINEKVPSRFRYMPHSFVFQDAPVIFS
LSSFSDEQSCSTSCIEDCLASEMSCNCAIGVDNGFAYTLDGLLKEEFLEARISEARDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F21M11
                                                                                                                                                                                                                                                                                                                                                                                                                10501. .10551,10685. .10781,
/gene="F21M11.1"
/note="Hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="genomic_DN:
/cultivar="Columbia"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .119914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="F21M11.1"
|oin(7684. .7866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="overlap with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone="F21M11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'chromosome="I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (7684. .7866,7965. .8027,8122. .8160,8250. .8381
.8728,8875. .9893,10003. .10256,10344. .10410,
... 10551,10685. .10781,10885. .10913)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC002411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in this region are annotated in the F21M11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bases 68998-78259 of 'IGF'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dunn, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BAC clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                               gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
```

```
/codon_start=1
/protein_id="AAD10669.1"
/brotein_id="AAD10669.1"
/db_xxef="gi:4204288"
/translation="MGSSSPEARARAQVPSMILIFLEIICTVHVYTNRRKLNRDVLSA
NLNIPKRVTRRDLRFWSSVISIYKSLMAAVSVHLPQLQIPNDCNYKNDALNNSNSPKH
GESEDSEMTDKDVSKRSGGTDSSSRDGSPLPTSEESDPRPKHQDWTEKQLSDHLLLYE
FESEYDAANHTPESYTEQAAKKVRDITASEQPSNAARKZICGDSFIQESSPNFKTQDP
TLRLMESLRSDDFTDYVKAQNHQMYVFSFWUIYSFVLCLRSNNLRCVVIFCVQQLPK
SHTEQDSKRKDITASDAMENHLKYPKRENNLMQKADDLDCNGKCSANSDDQLSEKIS
KALEQTSSNITICGFCQSARVSEATGEMLHYSBGRPUDGDDIFRSUVIHVHSACIEWA
PQVYYEGDTVKNLKAELARGMKIKCTKCSLKGAALGCFVKSCRRSYHVPCAREISRCR
WDYSDFLLLCPAHSSVUFPNEKSGHRVSRAEPLPKINARELCSLEQTPAFTKELVLGG
SALSKGDKKLMESLAVRFNATISRYWNPSVTHVIASTDEKGACTETTKVLMGILNGKW
INAAMMKASLKASQPVDEEPFEIQIITQGCQDGPKTAALRAETNKPLFEGLKFYFF
GDFYKGYKEDLQNLYKVAGGTILNTEDELGAESSNNVNDRSSSIVYNYNIDPPHGCAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (join (16835. .17185,17274. .17392,17491. .1765
17795. .17885,17982. .18079,18175. .18361,18504. .18604,
18705. .19049,19134. .19349,19439. .19791,19862. .19967,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REDKSVNWHSTPFEARLEKALNNIDK"
complement (16835. .20238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SKGRTKQKQSQKENSNFIADQEEKRDSSSFGTDPQIDDITLSVKPKCRIEPKKLRNQE
LAVDASLSTWLSTSESGSECNSASMYTLTPEKLKSTSCYSKPLRINHDDRPVLCALTL
EDIKQFSATSTPRKSPSKSPDETPIIGTVGGYWGNRSKAIDCGSASSFKGIPNTSSKY
/gene="F21M11.5"
join(20752. .20994,21362. .21497,21596. .21740,21825. .2
22102. .22178,22542. .22758,22920. .23064,23343. .23442,
23599. .23693,24021. .24072,24227. .24298,24441. .24647)
                                                                                                                                                                                           GEEVTIIWQRANDAEALASQTGSRLVGHTWVLESIAGYKLHPVIG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MLDQISGNHTHEKLSVETAEPHHLNDRVHIVEEIPKASVIPITE
ICDEAEEKCSPSTISKKRVTFDSKVKTYEHTVVSEESVETSEEKTSESKKSLKSSK
TDDQIIEVASKSKSSYPENKIRYKNCESDDDIEEDEFPCSDSDLDEDEEYSYSDVGFSE
DSLHNPTKEVYTQDIGDKTEEIDSKLRRSNETVRDGNHYDGQGVLNPVENLTQWKSAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(join(14567. .14641,14787. .15831,15906.
16327. .16362))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb|AA728590 and40C3T7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(join(14004..14312,14565..14641,14787.
15906..16006,16327..16362))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MDRTWFLSLTIASLLVGVVSAGDWNILNQLRGLGSSSSONGIVS
KGIKTDLKGYCESWRINVEVHNIRKFDVVPQECVSHIKDYMTSGYKDDVARTVDEVI
LHFGSMCCSKSKCDGMDAMIFDIDDTLLSTIPYHKNKGFFGGBKLNSTTKFEDMIOKK
APAVPHMKKLYHDIRERGIKIFLISSRKEYLRSATVDNLIQAGYYGMSNLMLRGLEDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (14004. .16362)
/gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QKEVKQYKSEKRKWLMSLGYRVWGVMGDQWSSFAGCPLPRRTFKLPNSIYYVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13033. .14514
/gene="F21M11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \mathtt{RDIEAMEELAWDYGIDFNDNDSLMKPFDCLCGSRFCRNKKRSTKTMQILNKA"}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KLQVFFTPNGKGWGLRTLEKLPKGAFICEYIGEILTIPELYQRSFEDKPTLPVILDAH
WGSEERLEGDKALCLDGMFYGNISRPLNHRCLDANLIEIPVQVETPDQHYYHLAFPTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="F21M11.4"
note="Hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="F21M11.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="AAD10667.1"
/db_xref="GI:4204286"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAD10666.1"
/db_xref="GI:4204285"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="Similar to aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0188. .20238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="F21M11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oin(13061. .13488,13717. .13926,14139. .14316)
gene="F21M11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="F21M11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oin(13033. .13488,13717.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein; Location of d40C3T7, gb|T04573"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to acid phosphatase;
12036, and 110C2XP, g)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .13926,14139.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gb|AI100245"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ESTS 40C3TT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .14514)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST8
```

/gene="F21M11.5" /note="Hypothetical protein"

```
DEFINITION
ACCESSION
VERSION
                                           RESULT 8
AX090328
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hes 375;
                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                                                                   948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      768
AX090328
Sequence 21
AX090328
AX090328.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                      TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                  CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA 1095
                                                                                                                                                                                                                                                                                                       ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGAT 22837
                                                                                                                                                                                                                                                                                                                                                                   GCCGACAAATATTAATTAACATTGAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                                                                     TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                             GTGTATCCATCAGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MGANSKSVTASFTVIAVFFLICGGRTAVEDETEFHGDYSKLSGI
IIFGFASTQLRAWSILDCYYTFLDEWRLDLYWLDTTKLLSAVGGWFKCMVLDFYNQTD
HPECKSRPDSGLSAITELDGYITGFLSTWWEMLKMCVEFGIEANAIVAPYDWRLS
CTKLEERDLYFHKLKLTFETALKLGGGSIVFGLSWEGGIEANAIVAYPYDWRLS
CTKLEERDLYFHKLKLTFETALKLGGGSIVFGLFVSEGTAKLLSNSFASIWLMFF
SKNCKGDNTFWTHFSGGAAKKDKRYYHCDEESYOSKYSGMPTNIINIEIFASTSARELA
DGTLFKAIEDYDDDSKRWLHQLKKYVPFFVIRNIAHRSSLAGFLLYHDDFVFNFLTFW
GRAFLKNUFCIYGAHLKTEVGYYFAFBGKFYFDNWIITDIIVETEGSLVSRSGTVVDG
NAGPITGDETVFYHSLSWCKNWLGFKVNITMAPQILIGKIKQPEHDGSDVHVELNVD
HEHGSDIIANWTKAFRVKYITFYEDSESIFGKRTAVWELDKSGY"
27777. 28734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (29264. .32033)
/gene="F21M11.7"
complement (join (29264. .31015, 31312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="mntktmrlpprrvltadkrkerdapissytdnppeiakfpsppp
klvppppvnpiskksstaaaepigsnolmlagylsheyltogtlfgeomnoaraoaess
kikpshtvepaecepkrkrybevanllrsdgaolpgivnpaolarfikl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="F21M11.6"
/note="Unknown protein; Location of ESTs
gb|H76794 and 203124XP, gb|AA605510"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="F21M11.6"
27777. .28734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="F21M11.6"
28007. .28465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/protein_id="AAD10670.1"
/db_xref="GI:4204289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAD10668.1"
/db_xref="GI:4204287"
                              from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16.6%;
                                                                                                                                                                                                                                                             -GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                              Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 271.8;
Pred. No. 3.1
                              WO0116308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                            đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.1e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
                                              DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 119914;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .31414,31484.
                                              PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           887
                                                                                                                                                                                                                                                                           1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22657
                                                                                                                                                                                    22957
                                                                                                                                                                                                                                                                                                                                                                                                                                 22717
                                                                                                                                                                                                                                             22897
                                                                                                      JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
AP006356/c
               FEATURES
                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35
```

Ś

5 밁

문

ð

밁

Ş

당

밁

Ś 밁 S 밁 Ś 밁 ક

```
Best Local Similarity Matches 222; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93398 bp DNA line Corniculatus var. japonicus genomic DNA, clone:LjT06I08, TM0082b, complete sequence. Ap006356 Ap006356.1 GI:31580987
                                        Direct Submission
Submitted (07-MAY-2003) Shusei Sato, Kazusa DNA Research Institute,
Department of Plant Gene Research; 2-6-7 Kazusa-kamatari, Kisarazu,
Chiba 292-0818, Japan (E-mail:ssato@kazusa.or.jp,
URL:http://www.kazusa.or.jp/, Tel:81-438-52-3935 (ex.2337),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zea mays
Zea mays
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopaida; Poales; Poaceae; PACCAD
Clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                    Asamizu,E., Kato,T., Sato,S., Nakamura,Y., Kaneko,T. and Tabata,S. Structural Analysis of a Lotus japonicus Genome. IV. Sequence Features and Mapping of seventy-three TAC clones which cover the 7.5 Mb Regions of the Genome DNA Res. (2003) In press DNA Res. (2003) In press (bases 1 to 93398)
                                                                                                                                                                                                                                                                                                                                                                                                                                        Lotus corniculatus var. japonicus (Lotus japonicus)
Lotus corniculatus var. japonicus
Lotus corniculatus var. japonicus
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Cosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Loteae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lassner, M. and van Eenennaam, A. Plant sterol acyltransferases Patent: WO 0116308-A 21 08-MAR-2001; MONSANTO COMPANY (US)
                               Fax:81-438-52-3934)
                                                                                                                                                                                                                                                                                                                                                                                                                       Lotus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCCCATCAATGCTTGAGGAGAGATCTGTACTTTCACAA 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGATAGACCATCCCGAATGCAAGTCAAGGCCTGATAGTGGTC-TTCTGCAATTACAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Zea mays"
/mol_type="unassigned
/db_xref="taxon:4577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 176.2; DB 6;
Pred. No. 1.6e-39;
D; Mismatches 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-JUL-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             213
```

```
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AP004120/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BTIIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
(E-mail:teasakiemias.affrc.go.jp, // Opp.:// Tep://rgp.dna.affrc.go.jp/, Tel:81-298-38-7441, Fax:81-298-38-7468)
On Jun 1, 2004 this sequence version replaced gi:34740243.
Genes were predicted from the integrated results of the following: GENSCAN (http://cCr.081.mit.edu/GENSCAN.html), FGENESH (http://www.softberry.com//, GeneMark/), GlimmerM (http://www.softberry.com//, GeneMark/), GlimmerM (http://cp.biology.gatech.edu/GeneMark/), GlimmerM (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://rgp.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://rgp.dna.affrc.go.jp/RiceHMM/), BLASTN and BLASTX. The genomic sequence was searched against NCBI NonRedundant Protein database, nr (ftp://ncbi.nlm.nih.gov/blast/db) and the cDNA sequence database at RGP or DDBJ Protein homologies of the coding regions were searched against NCBI NonRedundant Protein database with BLASTP. ESTs represent the identified cDNA sequences using BLASTN with the corresponding DDBJ accession no. and RGP clone ID. Full-length cDNAs represent the identified cDNA sequences using BLASTN with the corresponding DDBJ accession no.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (29-AUG-2001) Takuji Sasaki, National Institute of Agrobiological Sciences, Rice Genome Research Program; Kannondai 2-1-2, Tsukuba, Ibaraki 305-8602, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sasaki,T., Matsumoto,T. and Yamamoto, Oryza sativa nipponbare(GA3) genomic clone:OJ1293_E04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sasaki,T., Matsumoto,T. and Yamamoto,K. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa (japonica cultivar-group) genomic DNA, chromosome BAC clone:OJ1293_E04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Published Only in Database (2001)
2 (bases 1 to 118192)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AP004120.3 GI:47847857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AP004120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AP004120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ehrhartoideae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAACATTATTTCGAATGGCTGGATCAACATATTCACGCATATTTTGCTGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCATTGGGTAATCACGTTTTTCGTTATTTCTTGGAGGTGGTTGAAGCTAGAGATAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTTGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGATTGACATTTGAAACTGCCTTATAAACTTCGAGGTGGCCCCTCTTTAGTTTTTGCCCCA 32494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAGTTGACCTTTGAAACTGCTTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone:0J1293_E04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="LjT06108"
/clone_lib="LjT library"
/note="TM0082b, a part of TAC clone:TM0082.~synonym: Lotus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /variety="japonicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _
101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Lotus corniculatus var. japonicus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     db_xref="taxon:34305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oryzeae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 8;
Pred. No. 1.7e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118192 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 93398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLN 02-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
```

ફ 멍 Ś 밁 ई

밁

Pocus

```
mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   http://rgp.dna.affrc.go.jp/GenomeSeq.html.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Oryza sativa (
mol_type="genomic DNA"
/cultivar="Nipponbare"
/db xref="taxon:39947"
/chTomosome="2"
                                                        ADSDAVWASFLPRNLPDLADGELSPAPASKKELFLRLSDGPYLLSDRLMSMWLDRETG
AKCYMLSARSLVIIWGDTPHYWRWIPLTDSRFAEGAELIDVCWLBIRGRIHSKWLSPN
STYAAYMVFKIADEFYGLDAPFQEASVSLGGRGSTKIVCVQSYDSEDEEVPENYWPMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8501. .8573,8672. .9312)
/gene="OJ1293_E04.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              join(6482. .6988,7071. .
8501. .8573,8672. .9312)
/gene="OJ1293_E04.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="WELRONCVQKLGDSKVPWKFVPDFPFSEVVEFLKGYRVEVCGKI
PCKMLSGNSNYAAYIVFVVAEDSCGLASVWVATVGVGGRQSTRQVCLDSSNRNDYYYE
GEIEVPQDGSVJLPQERADGWMELELGEFYNQEGNNQGEVCFSLVKPKAGRWLSNGGL
VIQGIEIRPKIS"
                  IGPLLRRRARRRDRRLVLDEGVTVPQKRTDEWMELEMGEFINEEGEDGEVCFSLMETK
GGNWKRGLIVQGIEIRLKKSG"
                                                                                                                                                                                                                    contains full-length cDNA(s):
phloem-specific lectin"
                                                                                                                  /produCt="F-box family protein-like"
/protein_id="ADD21652.1"
/db_xref="G1:47847859"
/translation="MEEEGEGLCEIARLPEELLSAAISRASPRDACHAAAVSPAFRAA
                                                                                                                                                                                                                                                                          /note="supported by full-length cDNA(s):
join(11964. .12242,12368. .12486,13292.
/gene="OJ1293_E04.3"
                                                                                                                                                                                                                                                                                                                                      /note="supported by full-length cDNA(s):
join(11953. .12242,12368. .12486,13292. .
gene="OJ1293_E04.3"
                                                                                                                                                                                                                                                                                                                                                                                              /gene="0J1293_E04.3"
join(11875. .12242,12368. .12486,13292.
/gene="0J1293_E04.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="0J1293_E04.2"
|oin(6482..6988,7071.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="hypothetical protein"
/protein_id="BAD21651.1"
/db_xref="GI:47847858"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                join(1863. .1936,2024. .2468)
/gene="OJ1293_E04.1"
/note="predicted by GeneMark.hmm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="0J1293_E04.1"

join(<1863. .1936,2024. .>2468)

gene="0J1293_E04.1"

note="start and end point are not
                                                                                                                                                                                                                                                         note="contains EST(8): AU092429(C50563)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clone="OJ1293_E04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1875. .13972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . .118192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="transposase-like"
.15901,16106. .16272,16375.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .7653,7919.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .7653,7919.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (japonica cultivar-group)'
                                                                                                                                                                                                                                        AK060823, AK098981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             identified"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .8032,8112. .8419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .8032,8112.
.16439,16593.
                                                                                                                                                                                                                                                                                                                                                                                                                       .13972)
                                                                                                                                                                                                                                                                                                                     AK098981
                                                                                                                                                                                                                                                                                                                                                                             AK060823"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .8419,
```

.16662

```
gene
                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (27410. . .29382)
/gene="OJ1293_E04.5"
complement (join (<27410. .27558,29301. .>29382))
/gene="OJ1293_E04.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WKGMGAHVDLFYRKELFLRGFDDEMRTVVÅSNLEGRGIRLHPGTNLSELSKTADGIKV
VTDKGEBIJADVVLFATGRT BNSQRLMLEAAGVEVDNIGAIKVDDYSRTSVENIWAVG
DVTNRINLTFYALMEATGESKTVFGGOPTKPDXRDVPGAVFSIPPLSVGVELSEQOALE
EAKSDVLVYTSSFNÞMKNSISKROEKTVMKLVVDSETDKVLGASMCGPDAPEIIQGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="markmlkdeevevavtdggsydydlfvigagsggvrgsrtsasf
garvalcelpfhjissdwggghggtcvlrgcvpkkiilvtgssfrggefbdaknfgmeik
gdinpmwkrllenktygeivrlngvydrilggsvytmiesagsivdahtywetytkpdgsk
grytakhiliatgsraqrvnipgkelaitsdealsleelpkravilgggyiavefasi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   probably inactive due to including stop codon(s) in CDS"
join(16132. 16272,16375. 16439,16593. 16662,16996. 1.
17165. 17368,18290. 18363,18462. 18545,19079. 19166,
19260. 19341,19675. 19748,19971. 20078,20180. 20244,
20814. 20927,21141. 21240,21337. 21390,21469. 21564)
//gene="OJ1293_B04.4-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="0J1293 E04.4-2"
/gene="0J1293 E04.4-2"
join(<15858. 15901,16996. .17067,17165. .17368,18290. .18363,
18462. .18545,19079. .20078,20814. .>20860)
/gene="0J1293 E04.4-2"
/note="supported by full-length cDNA(s): AK066398"
15858. .20860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MDLLPLVTLLLLAHAAAWVAWQAAARRRRATCYLLDYACHKPSD
DRKVTTELAGAIIERNKRLGLPEYRFLLKVIVNSGIGEHTYSPRNVLDAREDCPTLRD
ALDEMDDFFDDAVAAVLARAAVSPRDVDLLVINVGSFSPSPSLADRVVRRFGLRDDVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="start and end point are not identified"
complement(join(27410. .27558,29301. .29382))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="contains EST(s): D22281(C10676),AU102120(C10676)
contains full-length cDNA(s): AK100446,AK058270"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16996. .17067,17165. .17368,18290. .18363,18462. .18545, 19079. .19166,19260. .19341,19675. .19748,19971. .20078, 20180. .20244,20814. .20927,21141. .21240,21337. .21390,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VALKCGATKATFDSTVGIHPSAAEEFVTMRTLTRRVSPSSKPKTNL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="OJ1293_E04.4-1"
/note="supported by fu
15858. .20860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="glutathione reductase"
/protein_id="BAD21653.1"
/db_xref="GI:47847860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="OJ1293_E04.4-2"
/note="contains full-length cDNA(s): AK066398
                                                                                                                                                                                                                                      /gene="OJ1293_E04.6"
/pote="contains full-length cDNA(s): AK107210"
                                                                                                                                                                                                                                                                                                                note="supported by full-length cDNA(s): AK107210"
31845. .33236
                                                                                                                                                                                                                                                                                                                                                                      gene="0J1293_B04.6"
                                                                                                                                                                                                                                                                                                                                                                                                      /gene="OJ1293_E04.6"
31777. .33484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAENRTTPTGNSSSHRGRLLHRRPRLSRQTD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="MELRSHRIYWPLYMLEMKWRGVRVRMRALSTCGTPTPAASAGQS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="BAD21654.1"
/db_xref="GI:47847861"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene="OJ1293_E04.5"
note="predicted by GENSCAN etc."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                      protein_id="BAD21655.1"
db_xref="GI:47847862"
                                                                                                                                                                                product="putative fatty acid elongase 3-ketoacyl-CoA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       full-length cDNA(s): AK100446"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .17067,
```

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
AP005691/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
Agrobiological Sciences, Rice Genome Research Program; Kannondai 2-1-2, Tsukuba, Ibaraki 305-8602, Japan (E-mail:tsasaki@nias.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, Tel:B1-298-38-7441, Fax:B1-298-38-7468)

On Jun 1, 2004 this sequence version replaced gi:38564216. Genes were predicted from the integrated results of the following: GENSCAN (http://CCR-081.mit.edu/GENSCAN.html), FGENESH (http://www.softberry.com/), GeneMark.hmm (http://www.softberry.com/), GeneMark.hmm (http://www.tigr.org/tdb/glimmerm/glmr_form.html), RiceHMM (http://www.tigr.org/tdb/glimmerm/glmr_form.html), RiceHMM (http://spd.dna.affrc.go.jp/RiceHMM/), SplicePredictor (http://spd.dna.affr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published Only in Database (2002)
2 (bases 1 to 147123)
Sasaki.T., Matsumoto,T. and Katayose,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sasaki,T., Matsumoto,T. and Katayose,Y. Oryza sativa nipponbare(GA3) genomic DNA, clone:OSJNBa0053L11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridilplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147123 bp DNA line
Oryza Bativa (japonica cultivar-group) genomic
BAC clone:OSJNBa0053L11.
AP005691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (05-SEP-2002) Takuji Sasaki, National Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AP005691.3 GI:47848524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCCCAAGCATTACATCCGATGGCTTGACGAACATATACATGCATACTTTGCAGTTGG 64375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCACCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGG 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTCATTCCATGGGTAATAATGTGTTTCGCTACTTTCTGGAATGGTTGAAACTAGAAATC 64434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATT 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACTGCAGGTTAACTTTTGAAACTGCATTGAAACTTCGAGGAGGGCCTTCTTTAGTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="OJ1293_E04.7"
35504. .35704
/gene="OJ1293_E04.7"
/note="hypothetical ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RCGGAAALLTNDPAFRSRAKMELRCLVRAHIGAHDDAHAAAVHREDADGRLGVSLSKA
LPKAAVARFYENLQRLAPRILDAGELAFFAARLLLRKLLRKAAGAAAKINFKTGVD
HFCLHPGGTAVIEAVRKSLGLDSYDVEPARWALHRWGNTSASSLWYVLSYMEAKGRLA
AGDRVLMVTFGSGFKCNSSYWVVTKDLADAGAWEDCIHDYPPANLVNPYMEKFGWVND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AYNLSGMGCSAGLVSVDLARNVMLTRPRTMALVLTSESCAPNWYTGTDKSMMLGNCLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPSQGQGGAFPFF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .35704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 113.4; DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.7e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
omic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 118192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLN 02-JUN-2004 chromosome 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
FEATURES
                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A gene with identity or significant homology to a protein is classified based on the protein name to indicate the homology level such as same name, 'putative-' and '-like protein'. A gene without significant homology to any protein but with full-length cDNA or EST homology (covering almost the entire length of partial sequence) is classified as an 'unknown' protein. A gene predicted by two or more gene prediction programs is classified as a 'hypothetical' protein according to IRGSP standard. A gene predicted by a single gene prediction program is also classified as a probable 'hypothetical' protein and is included as a miscellaneous feature of the sequence.

The orientation of the sequence is from -21M13 to M13rev of the BAC clone. This sequence of OSJNBBOOSSLII clone has an overlap with P0016F11 (DDBJ: AP005303) clone at 5' end and with OJ1293_E04 (DDBJ: AP004120) at 3' end. Detailed information on overlap and assembly quality together with annotation of this entry is available at http://rgp.dna.affrc.go.jp/GenomeSeq.html.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Join(210. .282,431. .528,603. .662)
/gene="OSJNBA005311.11"
/join(210. .282,431. .528,603. .662)
/gene="OSJNBA0053111.1"
/note="hypothetical ORF
predicted by GENSCAN
                                                                                                                                                                     /translation="mssnnsmeanngddekkqeqvvcvtgaggfigswvkelllrgy rvgfaraferigsevkelllrgy rvgfaraferkahlldlegakerltlcradvldfaslenskelafaggeskoe pnlvpvalegtescwsdefe pnlvpvalegtervkaaadmgvrrvvftssygavhmennspdavldescwsdefe Qrediycyakmaektareeasrrrlolavvvfcvtvgbilqesvmeschuvrxvltg aaatypnavaayadvrdvarahvlvyehhgargrylcigtvihraellrmlkelfpqy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 join(4436..4894,4982..5164,5251..5600,6156..6617)
/gene="0SJVBa0053111.3"
/note="supported by full-length cDNA(s): AK119257"
/oin(4438..4894,4982..5164,5251..5600,6156..6725)
/gene="OSJVBa0053111.3"
/note="supported by full-length cDNA(s): AK063935"
/join(4586..4894,4982..5164,5251..5600,6156..633)
/gene="OSJVBa0053111.3"
/gene="CSJVBa0053111.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tranelation="MACHGDAYVSRRRGTUSARATESPPRRQASASARGSIASAATRD
SANAEGLRPLWLSASALSHGSVTSAITRNSYAVNVATSRGSPSLPPRATPPAARGYVA
SPPRRDTANPSTRHGGQTAAATRWPPLGSTCG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             contains full-length cDNA(s): AK119257,AK063935
complement(join(<7826. .8214,8309. .>8435))
                                                                           complement (7826.
                                                                                                                                         PVTSKCEDEGNQMVKPYKFSNQRLRDLGLEFTPLRKSLHEA1ECLQRKGHLPVVTVAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="hypothetical protein"
/protein_id="BAD22377.1"
/db_xref="GI:47848525"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 this category is not included in IRGSP standard"
                                complement (7826. .8435)
/gene="OSJNBa0053L11.4"
                                                                                                                                                                                                                                                                                                                                                   protein_id="BAD22378.1"
/db_xref="GI:47848526"
                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/product="putative cinnamoyl CoA reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="OSJNBa0053L11.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       join(2264. .2293,2852. .3226)
/gene="OSJNBa0053L11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oin(<2264. .2293,2852. .>3226)
/gene="OSJNBa0053L11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="OSJNBa0053L11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone="OSJNBa0053L11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cultivar-"Nipponbare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Oryza sativa (japonica cultivar-group)"
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="predicted by GENSCAN etc."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="start and end point are not identified"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="taxon:39947"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .147123
                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                            Sdo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                AHLRCRRLVFFLTRLTYYAAISGHLRFHRRPPSSPPTGVFTVIDGRLCSHIGHFCHHO
GEYYKKNGSVRTSPEARLDRRRLVFFPARLAFMFPLLGVYVFTDRLAFAADWCFRL
HGWPLCRRCWASTSSPTGRELVRRRLVLPPARLAYYAAVGRLRLHRPAASAADWCFR
LHGWFIMPFLLGVYVFTDRLAFAADWCFRLHGWPIMPFLLGVYVFTDRPFRPPTGA
SACTAGLLCRRCWASTSSPTGLPSPPTGVSACTAGLYATVVGRRLRLHRLACLBRCRL
VFPPARLAFWPLLGVYVFTDRLAFAADADWCFRLHGWPIMPRLLHLRLACLBRCRL
VFPPARLAFWPLLGVYTDRLAFAADADWCFRLHGWASTSSPTGLPSPPT
TGVSACTAGLLCRRCWASTSSPTGRLVRRRLVLPPARLAYYAAVVGRIRLHRPACLBR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="OSJNBa0053L11.6"
complement(join(12759. 12851,13439. 13519))
/gene="OSJNBa0053L11.6"
/note="hypothetical ORF
predicted by GENSCAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MSSISNDNNGDQKRQQQQLVCVTGAGGFIGSWVVRELLLRGYR VRATVRDPADRKNAHLLALEGAHERLSLRRADVLDFAGLLAAFAGCHGVFHVAGPLSN RDFELMAVAUDTRNVMAAADMGVRRVVFTSSYGAVHMDPNRSPDAVLDESGWSDFE FCRQKDVSLLHNYCYAKTMAEMAATEEAAKRGLELAVVVPSWTMGPMLQRALNLUSSTH VANYLTGAKKSYPNAVAAAYVDVRDVARAHALVYERHDARGRYLCIGAVLHRAQLLQML
                                                                                                    /note="start and end point are not identified"
complement(join(18994. .19134,19786. .19818))
                                                                                                                                                              complement(join(<18994. .19134,19786. .>19818))
/gene="OSJNBa0053L11.8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTGVLAYTVGWSHHRSWASTSSPTGWPSPPPTGVSAYTVGLLCHRCWASTTSPPACLR
RRILVPPTRVAYYAAAVGRLEHRRPAFAAADWCFRLHGWPTWAPLLGYVDFTAGLS
PSPPSGASAYTAGLLCRCCWASTTSPPAYLRRRRVVPPPTRLAYYAAAVGRLRLHRRP
ASVAAEWCLRLHGWPTMPPLLGVYDFTAGLPPSPPSGASAYTAGLLCRRCWMSTSSLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="OSJNBa0053L11.4"
/note="start and end point are not identified"
complement(join(7826. .8214,8309. .8435))
/gene="OSJNBa0053L11.4"
                                                                                                                                                                                                                                              complement (18994. .19818)
/gene="OSJNBa0053L11.8"
                                                                                                                                                                                                                                                                                                                                                   CRLVFPPARLAFMPPLLGVYVFTDRLAFAAADWCFRLHGWPLCHRCWASTSSPTGLPS
PPPTGVSACTAGLYAAVVGRLRLHRPACLRRRRLVFPPARLAFMPPLLGVYVFTDRLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="maaagpsssapprpgagvatmvagrrgdsaaggrgalhgrrgaa
avvadvvetklattaadcgscrdagprhcsgcerrardaflhdasdprvalhlrsasp
RPDLDVwrlvalasdgggwtgvavavavamamvadgggcgsdggyrrcylwrrwlka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this category is not included in IRGSP standard"
15304. .18533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (join (12759.
                            /gene="OSJNBa0053L11.8"
/note="predicted by FGENESH etc
                                                                                                                                                                                                                                                                                                              FAAADWCFRLHGWPIMLPLLGVYVFTGRPPHPPLTDVTASTAGLL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="HGWP repeat containing protein-like"
/protein_id="BAD22381.1"
/db_xref="G1:47848529"
/translation="MGVHVFADRLAFAAADWCFCLHGWPIMPPLLGVYDFTTGLPPSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="start and end point are not identified"

join(15304. 16325,17024. 18533)

'gene="053/NB80053L11.7"

/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MDLFPQYTIASKCDDKGKPMVKPYBFSNQRLKDLGLBFTPLRKSLYDAVMCMQRNGHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative cinnamoyl CoA reductase"
/protein_id="BAD22380.1"
/db_xref="GI:47848528"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              join(<9814. .10128,10328. .10525,10605. .10954,11058. .>11214)
/gene="OSJNBa0053L11.5"
/note="start and end point are not identified"
join(9814. .10128,10328. .10525,10605. .10954,11058. .11214)
/gene="OSJNBa0053L11.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9814. .11214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="hypothetical protein"
/protein_id="BAD22379.1"
/db_xref="GI:47848527"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="OSJNBa0053L11.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="OSJNBa0053L11.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oin(<15304. .16325,17024. .>18533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="OSJNBa0053L11.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="similar to Oryza sativa chromosome 1, P0497A05.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IRLTVRHRRR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .12851,13439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .13519))
```

```
RESULT 12
AP004882/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126651 AACTGCAGGTTAACTTTTGAAACTGCATTGAAACTTCGAGGAGGGCCTTCTTTAGTGTTT
                                                                                                                 Agrobiological Sciences, Rice Genome Research Program, Kannondai 2-1-2, Tsukuba, Ibaraki 305-8602, Japan (E-mail:teasakiamias affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, Tel:81-298-38-7441, Fax:81-298-38-7468)

NOTE: It currently consists of l contigs. Gaps between the contigs are represented as runs of N. The order of the pieces is believed to be correct as given, however the sizes of the gaps between them are based on estimates that have provided by the submitter. This sequence will be replaced by the finished sequence as soon as it is available and the accession number will be preserved.

* This is a "working draft" sequence.

* This sequence will be replaced by the finished sequence as soon as it is a the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sasaki,T., Matsumoto,T. and Yamamoto,K. Oryza sativa nipponbare(GA3) genomic DN clone:P0511E12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HTG; HTGS PHASE2.

Oryza satīva (japonica cultivar-group)

Oryza satīva (japonica cultivar-group)

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Epermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oryza sativa (japonica cultivar-group)
*** SEQUENCING IN PROGRESS ***.
APD04883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Published Only in Database (2002)
2 (bases 1 to 158971)
                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (20-MAR-2002) Takuji Sasaki, National Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AP004882.1 GI:19698302
                                                                                                                                                                                                                                                                                                                                                                                                                                  Sasaki,T., Matsumoto,T. and Yamamoto,K.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ehrhartoideae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCCCAAGCATTACATCCGATGGCTTGACGAACATATACATGCATACTTTGCAGTTGG 126473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCATTCCATGGGTAATAATGTGTTTCGCTACTTTCTGGAATGGTTGAAACTAGAAATC 126532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (join (21959. .22112, 22149. /gene="OSONBA0063111.9" /note="hypothetical ORF predicted by GlimmerM this category is not included in IRGS
/organism="Oryza sativa
/mol_type="genomic DNA"
/cultivar="Nipponbare"
/db_xref="taxon:39947"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (join (21959.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KDVVVGEVVKLAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="hypothetical protein"
/protein_id="BAD22382.1"
/db_xref="GI:47848530"
                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="OSJNBa0053L11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  translation="MEVKKPVGNSQICVEGVQVEILNIGESLVVVKYHGIACRDVEVH/
                                                                                 .158971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 113.4; DB 8;
Pred. No. 3.7e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   is not included in IRGSP standard"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .9" .22112,22149.
                                                              (japonica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear HTG 23-MAR-2002 chromosome 2 clone P0511E12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 147123;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .22168))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
BD271624
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
  S
                                        밁
                                                                             Ś
                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58178
```

VERSION

TITLE

COMMENT

В Ś

밁

Ś 밁 ş

```
Query Match
Best Local Sim
Matches 138;
                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   58238
                           1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            517
                                                                                                                                                          152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASF PLANT SCIENCE GMBH

OS Lycopersicon esculentum (tomato)

PA UP 2002541783-A/9

PA 10-DEC-2002

PF 28-MAR-2000 JP 2000609586

PF 28-MAR-2000 JP 99106656.4,10-JUN-1999 EP 99111321.8 PR

O7-FEB-2000 US 60/18687

PI ANDERS DAHLQVIST,ULF STAHL, MARIT LENMAN, ANTONI BANAS PI

HANS RONNE,STEN STYMNE

PC C12N15/09,A01H5/00,C12N1/19,C12N5/10,C12N9/10,C12P7/64// PC

(C12P7/64,C12R1:645),(C12P7/64,C12R1:91),C12N15/00,C12N5/00 CC
                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel class enzyme in biosynthesis pathway
of triacrylglycerol
CC production
CC and recombinant DNA molecule encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dahlqvist,A., Stahl,U., Lenman,M., Banas,A., Ronne,H. and Stymne,S. Novel Class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme Patent: JP 2002541783-A 9 10-DEC-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamiids; Solanales; Solanaceae; Solanum; Lycopersicon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA linear PAT 17-JUL. Novel class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme. BD271624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      asterids; lamiids;
1 (bases 1 to 709)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JP 2002541783-A/9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BD271624.1 GI:33081392
                                                                                                                                                                                                                                                                                                                                                                                 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
CATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAA 1545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCACCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGG 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATT 636
                                                                     CTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAGCATGAT-GTTCAGATGTA
                                                                                                            GCTCCCAAGCATTACATCCGATGGCTTGACGAACATATACATGCATACTTTGCAGTTGG 58060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCATTCCATGGGTAATAATGTGTTTCGCTACTTTCTGGAATGGTTGAAACTAGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACTGCAGGTTAACTTTTGAAACTGCATTGAAACTTCGAGGAGGGCCTTCTTTAGTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTT
                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                        and recombinant DNA molecule Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                  /organism="Lycopersicon
/mol_type="genomic DNA"
/db_xref="taxon:4081"
                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="P0511E12"
                                                                                                                                                                             6.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.9%;
                                                                                                                                                        <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                        Score 110.4; DB 6
Pred. No. 2.3e-20;
0; Mismatches 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 113.4; DB 2
Pred. No. 3.7e-21;
0; Mismatches 41
                                                                                                                                                                                                                                                                                                                                                                             organism='Lycopersicon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (tomato)
                                                                                                                                                                                                                                                                                                              esculentum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                encoding the enzyme
                                                                                                                                                                                                  DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                          51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41;
                                                                                                                                                          Indels
                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 158971;
                                                                                                                                                                                                                                                                                                                                                                                    esculentum (tomato)'
                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAT 17-JUL-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Кеу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               576
                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   58179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
BD271634
LOCUS
                                   Ś
                                                                                 밁
                                                                                                                Ś
                                                                                                                                                                 밁
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                  Best Local Similarity Matches 152; Conserv
                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ISM Lycopersicon esculentum (Commetor)

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamids; Solanales; Solanaceae; Solanum; Lycopersicon.

CE 1 (bases 1 to 709)

Dahlqvist,A., Stahl,U., Lenman,M., Banas,A., Ronne,H. and Stymne,S. Bohlqvist,A., Stahl,U., Lenman,M., Banas,A., Ronne,H. and Stymne,S. Novel class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme and stymne,S. Lycopersicon esculentum (tomato)

PATE 70.02541783-A 19 10-DEC-2002;

BASF PLANT SCIENCE GMBH

OS Lycopersicon esculentum (tomato)

PATE 10-DEC-2002

PATE 1999 EP 99106556.4,10-JUN-1999 EP 9911321.8 PR 01-APR 1999 EP 99106556.4,10-JUN-1999 EP 9911321.8 PR 07-FEB-2000 US 60/180687

PATE ANDERS DAHLQVIST, ULF STAHL, MARIT LENMAN, ANTONI BANAS PI HANS RONNE, STEN STYMNE

PC C12N15/09, A01H5/00, C12N1/19, C12N5/10, C12N9/10, C12P7/64// PC (C12P7/64, C12R1:645), (C12P7/64, C12R1:91), C12N15/00, C12N5/00 CC Novel class enzyme in biosynthesis pathway

Of triacrylglycerol production

CC and recombinant DNA molecule encoding the enzyme FH Key Location/Oualifiers
                                                                                                                                                                                                           1486
                                                                                                                                                                                                                                                                                               1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1606
                                                                                                                         1546
180
                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                       ᆫ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                production and recombina
BD271634
BD271634.1 GI:33081402
JP 2002541783-A/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BD271634 709 bp DNA linear PAT 17-JUL-2003 Novel class enzyme in biosynthesis pathway of triacrylglycerol production and recombinant DNA molecule encoding the enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lycopersicon esculentum
                                                                                                                                                                                                                                                                                    GCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGA 1605
                        ACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                               TTACCTACAATGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTCCAGGGACAAGA
                                                                                                            GCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCAGTTCCGGGGAAGAGA 1605
                                                                                                                                                                 CAAGTGCATCTAAATATAGAGCATCAACATGGTGAAGATATCATTCCCAATATGACAAAG
                                                                                                                                                                                                        CATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAA 1545
                                                                                                                                                                                                                                                     CTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAGCATGAT-GTTCAGATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTACCTACAATGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTCCAGGGACAAGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAGTGCATCTAAATATAGAGCATCAACATGGTGAAGATATCATTCCCCAATATGACAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACAGCAGTTTGGGAGCTTGATAAA 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         production and recombinant DNA mo
                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism='Lycopersicon
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Lycopersicon
/mol_type="genomic DNA"
/db_xref="taxon:4081"
                                                                                                                                                                                                                                                                                                                                                        6.7%;
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                        Score 110.4; DB 6;
Pred. No. 2.3e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (tomato)
                                                                                                                                                                                                                                                                                                                                      Mismatches
203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    esculentum"
                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    esculentum
                                                                                                                                                                                                                                                                                                                                                                                709;
                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                   119
                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   119
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AX037588
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
Search completed: November Job time: 7219 secs
                                                                  밁
                                                                                            Ś
                                                                                                                              밁
                                                                                                                                                           Ś
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                    Matches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bource
                                                                                                                                                                  1546
                                                                                                                                                                                                                                   1486
                                                                                                                                                                                                                                                                                                    1426
                                                                                                1606
                                                                  180
                                                                                                                                 120
                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Banas, A., Stahl, U., Stymne, S., Lenman, M., Ronne, H. A new class of enzymes in the biosynthetic pathway production of triacylelycerol and recombinant dna mencoding these enzymes encoding these enzymes patent: WO 0060095-A 12 12-OCT-2000; BASE PLANT SCIENCE GWBH (DE); BANAS ANTONI (PL); STYMNE STEN (SE); LENMAN MARIT (SE); RONNE HANS (STYMNE STEN (SE); LENMAN MARIT (SE); RONNE HANS (STYMNE STEN (SE); LENMAN MARIT (SE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 12 from 
AX037588
AX037588.1 GI:11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamiids; Solanales; Solanaceae; Solanum; Lycopersicon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AX037588
                                                                                                                                                                                                                                                                                          ACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                 GCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGA 1605
                                                                                                                                                                                                                              CATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAA 1545
                                                                  ACAGCAGTTTGGGAGCTTGATAAA
                                                                                                                                 TTACCTACAATGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTCCAGGGACAAGA
                                                                                                                                                                                                  CAAGTGCATCTAAATATAGAGCATCAACATGGTGAAGATATCATTCCCAATATGACAAAG
                                                                                                                                                                                                                                                                     CTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAGCATGAT-GTTCAGATGTA
                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (SE)
                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Lycopersicon esculentum"
/mol_type="unassigned RNA"
/db_xref="taxon:4081"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                   6.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:11227007
              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent
               2005,
                                                                                                                                                                                                                                                                                                                                    o
..
                                                                                                                                                                                                                                                                                                                                                   Score 110.4; DB 6
Pred. No. 2.3e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             709 bp
WO0060095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (tomato)
               06:57:18
                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                   DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RNA
                                                                                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; STAHL
; (SE) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and Dahlqvist, A. for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT
                                                                                                                                                                                                                                                                                                                                    1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     L ULF (SE) ;
; DAHLQVIST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-NOV-2000
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                    119
                                                                                                                                                                                                                                                                     59
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic - nucleic search, using
                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
9
                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   веq
                                                                                                                                                                                                                                                                                                                                                                               N_Geneseq_16Dec04:*
1: geneseqn1980s:*
2: geneseqn1990s:*
3: geneseqn2000s:*
4: geneseqn2001bs:*
5: geneseqn2001bs:*
6: geneseqn2002bs:*
7: geneseqn2002bs:*
9: geneseqn2003bs:*
10: geneseqn2003cs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length: 0
length: 2000000000
   1166.68
106.66
106.68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY NUC Gapop 10.0 ,
                                                                                                                                                                                                                                           Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            November 9, 2005, 01:38:48; Search time 927 Seconds (without alignments)
10479.283 Million cell updates/sec
                                                                                                                                                                                                                    100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-651-651-4
1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 l atgggagcgaattcgaaatc.....ttgataaaagtgggtattaa 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copyright
                                     0000000NA
                                                                                                                                                                                                                                                                                                                                             geneseqn2003cs:*
geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
                                  3896
3896
328
709
709
356
1872
1701
1701
1986
1986
1986
1986
1986
1986
2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapext 1.0
   2338822333222
                                 AAD611082
AAD6417823
AAC64438
AAC64448
AAS61096
AAC64449
AAC64439
AAC644491
AAD647817
AAD647817
AAD64441
AAC64441
                                                                                                                                                                                                                                           ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sw model
                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.1.6
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8780412
Aas01082 Arabidops
Adf47823 Arabidops
Aac64448 Arabidops
Aac64448 Arabidops
Aac64448 Arabidops
Aas01096 Corn ster
Aac64439 Lycopersi
Aac64439 Lycopersi
Aac64439 Lycopersi
Aac64439 Schracosac
Adf47817 Yeast mem
Aac64441 Saccharom
Aac64441 Saccharom
Aac64441 Saccharom
Aac64440 Saccharom
Aac64440 Saccharom
Aac64440 Yeast LCA
Adf47816 Yeast acy
Ada71938 Rice gene
Ada71938 Rice gene
Aac64442 Schracosac
Continuation (13 o
                                                                                                                                                                                                                                           Description
```

	ი	O			ი				ი	ი	ი	ი										ი	Ω	
.Δ. UI	44	43	42	41	40	39	38	37	36	35	34	ω W	32	31	30	29	28	27	26	25	24	23	22	21
35.6	35.8	35.8	35.8	35.8	36	36	36.4	36.4	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	38.2	38.8	39.4	39.4
2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3		2.3	2.3				2.3				2.3	2.4	2.4	2.4
2356	266145	4590	2976	2016	3579	2433	110000	296	12600	12600	12600	11477	3791	3737	3556	2329	2329	2329	1292	473	2047	486	7299	2223
თ	10	v	4	12	w	9	σ	σ	4	4.	4.	4.	13	σ	12	13	13	10	10	σ	12	4.	13	12
AAS62537	ADE87477	AAH24065	ABA03653	ADF47833	AAA70099	AAL62907	ABA90521_16	ABV18850	ABL27368	ABL17952	ABL17948	ABL17946	ADP23240	AAS94885	ADH22401	ADR65806	ADR66490	ADG32012	ADC78228	ABV94819	ADF47829	AAF75507	ADR84383	ADF47830
Aas62537 cDNA sequ	Ade87477 Fowlpox v	Aah24065 Yeast AOD	Aba03653 Murine A-	Adf47833 Crepis pa	Aaa70099 Plasmodiu	Aal62907 Rice cDNA	Continuation (17 o	Abv18850 Human pro	Abl27368 Drosophil	Abl17952 Drosophil		Abl17946 Drosophil	0	Aas94885 Human DNA	Adh22401 Human cDN	Adr65806 Human pro	Adr66490 Human pro	Adg32012 Human DNA	Adc78228 Human sec	Abv94819 Human pan	Adf47829 Aspergill	Aaf75507 Polygluta	Adr84383 Aspergill	Adf47830 Aspergill

ALIGNMENTS

RESULT 1 AAS01082

31-MAY-2001 (first entry)

AAS01082;

AAS01082 standard; DNA; 1641

ВP

```
WPI; 200
P-PSDB;
                                                                                                             of plants.
                                                                                                                                          New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase acyltransferase by CoA:cholesterol acyltransferase acyltransferase by CoA:cholesterol acyltransferase 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana sterol acyltransferase LCAT2 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                        Lassner M, Van Eenennaam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-AUG-1999; 99US-0152493P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-AUG-2000; 2000WO-US023863.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200116308-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (MONS ) MONSANTO CO
                                                                                                                                                                                                                                                                                                                                                            2001-169010/17.
                                                                                                                                                                                                                                                                                                                  AAU00459.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product= "LCAT2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1641
                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

Claim 5; Page

77;

127pp; English

```
CC The present sequence encodes for Arabidopsis thaliana C lecithin:cholesterol acyltransferase-like 2 (LCAT2). Several novel C polynucleotides encoding the plant sterol acyltransferases LCAT C (AAS001081-AAS01104, AAS01341) and ACAT (acyl CoA:cholesterol C cacyltransferase-like; AAS01341) and ACAT (acyl CoA:cholesterol C cacyltransferase-like; AAS01341) and acat described. A yeast LCAT C cacyltransferase-like; AAS01341) are described. The polynucleotides encoding C LCAT or ACAT are used to produce LCAT or ACAT polypeptides. They can also be used in a recombinant construct to transform a host cell (preferably of a plant) or a plant. The recombinant construct is used to increase or C calter oil production of the cell or plant, preferably by increasing it.
CC The oil of the plant or the plant itself is used as a food product, or as nutritional or distary supplements, or in pharmaceutical compositions for lowering cholesterol. The oil can be used in foods e.g. margarine, C cheese, processed meat, pasta, sauces, cereals, desserts, dipp, chips, C baked goods, pastries, cookies, snack bars, confections, chocolates, and C perovide a plant with tolerance to stress and insect damage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1641 BP; 438 A; 355 C; 378 G; 470 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atch 100.0%; Score 1641; cal Similarity 100.0%; Pred. No. 0; 1641; Conservative 0; Mismatchee
                                                                                                                        541
                    661
                                                       601
                                                                                       601
                                                                                                                                                             541
                                                                                                                                                                                                  481
                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          سر
                                                                                                                                                                                                                                                                 GTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG
                                                                        TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                GCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTC
                                                                                                                                                                                                CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                      CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                                                                                                                                         GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                              GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTIGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                   TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                              ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1641;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                           600
                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                   660
                                                                                       660
                                                                                                                        600
                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
 RESULT 2
ADF47823
ID ADF4
XX
AC ADF4
XX
                                                                                                                                                                    δ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                  ADF47823;
                                                   ADF47823
                                                                                                                                                                                                               1561
                                                                                                                                                                                                                                                1561
                                                                                                                                                                                                                                                                                                                       1501
                                                                                                                                                                                                                                                                                                                                                        1441
                                                                                                                                                                                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                    1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                   standard; DNA; 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTGATAAAAGTGGGTATTAA 1641
                                                                                                                                                                                                                                   TACATAACCTTTTATGAAGACTCTGAGAGGGATCCGGGGAAGAGAACCGCAGTCTGGGAG 1620
                                                                                                                                                                                                                                                                                                        GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                              AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                              GATGAGACGGTACCCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATGAGACGGTACCCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAACTGAA 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGAGGTTACACCAGTTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGAATGTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGAATGTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTATGCCATTTTCAAAGAATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAATCAAATCTACTCTCTCTGGTGTAACGTTTTGGCCTTCCTGTTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTTGGTTCTGAG
                                                                                                                                                                                                                                                                                     GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                          AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGAACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTCAPAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAPAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGC
                                                                                                                                                                                                                 TACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAG
                                                     BP
```

밁 δ 밁 Ś 밁 S 밁 S 밁 Ş 밁 á 멍 Ś 밁 S 밁 δ 밁 ş 밁 S

1620

1560

1500 1440

1440

1380

1260 1200

1260

1140

1080 1080 1020 1020

960 960

```
CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carbohydrates and acylated amino acids. Also described: (1) a nucleotide sequence molecule (II) comprising at least one promoter region CC which functions in a host, where the promoter region is operably linked to at least one (I), which is operably linked to at least one non-CC translated region which functions in a host; (2) a vector comprising (II) CC; (3) a host cell comprising (II) or the vector; (4) producing an CC improved active membrane independent acyltransferase polypeptide, CC comprising providing the above host cell and a growth medium preparing a host cell culture, culturing the host cell culture and harvesting the cCC host cell culture and recovering the improved active membrane independent acyltransferase polypeptide; (5) a polypeptide obtained by the method in CC (4), where the polypeptide at least is an improved active membrane CC independent acyltransferase polypeptide; (6) an oligonucleotide comprising the above polypeptide; (6) an oligonucleotide comprising the above polypeptide and a stabiliser. The nucleic acid CC molecule (I) and the polypeptide are useful in producing structured CC indictors; and crown and condifying lipids present in animal and plant raw material. The present xx sequence is used in the exemplification of the present invention.
                                      Query Match
Best Local Simi
Matches 1625;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention describes a nucleotide sequence (I) derived from nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-MAY-2002; 2002SE-00001581.
29-MAY-2002; 2002US-0383889P.
20-JAN-2003; 2003SE-00000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acyltransferase; enzyme; membrane-spanning region; active membrane independent acyltransferase; fatty acid ester; tatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana
                                                                                                                          Sequence 1902 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 5; SEQ ID NO 8; 91pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-MAY-2003; 2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2004-053268/05
    thaliana acyltransferase nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ghosal
                                                                                                                          516 A; 405 C;
                                                            98.8%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Þ
                                        0
                                                              Score
Pred.
                                        Mismatches
                                                                                                                          444 G; 537 T; 0 U; 0 Other;
                                                              1622;
No. 0;
                                                                                 ₽B
                                                                                 12;
                                        5
                                           Indels
                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID
                                        0
                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NO:8
    6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ם
                                                              문
                                                                                                Ş
                                                                                                                                            밁
                                                                                                                                                                          ð
                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 B
                       1081
                                                                                                                                              961
                                                                                                                                                                                    961
                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGGATGTTACACCAGTTAAAG
                                                                                                                                                                                                                             CGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAATCAAATCTACTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCAGATACTITCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTGAGTTTGGTGTAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGAATGTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTTGCGGTGGCCGAACGGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                              ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                                                                                        ATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGC
                                                                                                       1080
                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
```

S

```
RESULT 3
AAC64438
ID AAC6
XX AAC6
XX AAC6
XX AAC6
XX AAC6
XX AAC6
XX PDA1
XX PDA1
XX PDA1
XX WO20
PN WO30
PN WPI;
XX Phos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ち 음 ち
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ર્ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                        01-APR-1999;
10-JUN-1999;
07-FEB-2000;
Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to
                                                                         Dahlqvist
                                                                                                                                                                       28-MAR-2000;
                                                                                                                                                                                                                          WO200060095-A2
                                                                                                                                                                                                                                                 Arabidopsis thaliana.
                                                                                                                                                                                                                                                                      PDAT; phospholipid:diacylglycerol acyltransferase; triacylglycerol; EST; expressed sequence tag; fatty acid; oil content; ds.
                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana PDAT genomic
                                                                                                                                                                                                                                                                                                                                                                                      AAC64438
                                                                                                  (BADI ) BASF
                                                                                                                                                                                                                                                                                                                                     12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1501
                                                 2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                      standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTGATAAAA 1630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAGACCGCAGTCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGAACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTATGAAACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGTTGTATCATGACGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAG
                                                                        Þ
                                                                                                                        99EP-00106656.
99EP-00111321.
2000US-0180687P.
                                                                                                                                                                         2000WO-EP002701
                                                                                                  PLANT SCI
                                                                                                                                                                                                                                                                                                                                    (first
                                                                         Stahl
                                                                                                                                                                                                                                                                                                                                                                                      DNA;
                                                                        Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1630
                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                  GMBH
                                                                         Lenman
                                                                                                                                                                                                                                                                                                                                                                                      ВÞ
                                                                        ĭ
                                                                                                                                                                                                                                                                                                            DNA SEQ ID
                                                                         Banas
                                                                        Ņ
                                                                                                                                                                                                                                                                                                            NO:11
                                                                         Ronne
                                                                       Ή
                                                                       Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1260
```

```
δ
                                                  밁
                                                                     Ş
                                                                                                   밁
                                                                                                                              S
                                                                                                                                                                밁
                                                                                                                                                                                    δ
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to discylglycerol in the biosynthetic pathway for the production of triscylglycerol (TAG). The enzyme is designated as phospholipid discylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Arabidopsis thaliana PDAT genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              increase
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 80.0%;
2207
                        1096
                                                    2147
                                                                              1036
                                                                                                           2087
                                                                                                                                                                                                                       1967
                                                                                                                                                                                                                                                                             1907
                                                                                                                                                                 2027
                                                                                                                                                                                                                                                                                                                                1847
                                                                                                                                                                                                                                                                                                                                                                                         1787
                                                                                                                                                                                                                                                                                                      888
                                                                                                                                    988
                                                                                                                                                                                           988
                                                                                                                                                                                                                                                 948
                                                                                                                                                                                                                                                                                                                                                             828
                                                                                                                                                                                                                                                                                                                                                                                                                   768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                      Page
              GAAGACTATGACCCAGATAGCAAGAGGGTTTACACCCAGTTAAAGAAGT
                                                    CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA
                                                                                                          GTGTATCCATCAGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT
                                                                                                                                                                                                                                      GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT
                                                                          CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA 1095
                                                                                                                                                                                                                                                                            TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3896 BP; 1042 A; 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oil content
                                                                                                                                                                ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGAT
                                                                                                                                                                                                                      GCCGACAAATATTATTAACATTGAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                                                                                                                                                                                                 TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60-61; 97pp;
                                                                                                                                    GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTT 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  English
                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 271.8; DB 3
Pred. No. 1.8e-74;
0; Mismatches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; 769 G; 1360 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3896;
                        1144
                                                                                                                                                                                                                                                                                                                                                                                                                                          92;
2255
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                   1906
                                                                                                           2146
                                                                                                                                                                                           987
                                                                                                                                                                                                                       2026
                                                                                                                                                                                                                                                 987
                                                                                                                                                                                                                                                                            1966
                                                                                                                                                                                                                                                                                                         947
                                                                                                                                                                                                                                                                                                                                                                                         1846
                                                                                                                                                                                                                                                                                                                                                                                                                   827
```

AAC64448 standard; DNA; 3896 ВP

12-FEB-2001 (first entry)

Arabidopsis thaliana PDAT genomic DNA SEQ IJ NO: 10b

PDAT; phospholipid:diacylglycerol acyltransferase; triacylglycerol; EST; expressed sequence tag; fatty acid; oil content; ds.

Arabidopsis thaliana

RESULT 4
AAC64406
ID AAC66
XX AAC66
XX AAC6
XX AAC6
XX AAC6
XX PD12-F
XX BATAB
XX PDAT
XX PDAT
XX PDAT
XX PDAT
XX PATAB
XX PDAT
XX PATAB
X

```
S
                                                                                                                                                                                                                                                                                                                                         S
                                                                    S
                                                                                                    밁
                                                                                                                            δ
                                                                                                                                                                            ક
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                  밁
                                                                                                                                                      밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-APR-1999;
10-JUN-1999;
07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dahlqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BADI ) BASF
                                                                                                                                                                                                                                                              1907
2207
                                                                                                                                                                                                                                                                                                                   1847
                                                                                                                                                        2027
                                                                                                                                                                                                           1967
                                                                                                                                                                                   988
                                                                                                                                                                                                                                    948
                                                                                                                                                                                                                                                                                          888
                                                                                                                              886
                                                                                                                                                                                                                                                                                                                                                                                                768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                           GCCGACAAATATTAATAACATTGAAATTCCTTCCACTAGC---------
                                                                                                                                                                                                                                                              TTCAAAGAATTGCAAGGGTGATAACACATTCTGGACGCATTTTTCTGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                            TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                    TCAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                         TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 95-96; 97pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oil content
                        GAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT 1144
                                                                          CCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATA 1095
                                                                                                                  GCCGACAAATATTAATTAACATTGAAAATTCCTTCCACTAGCGGTTAGACTCTGTATATGCA
                                                                                                                                                        ACTGTAACACTAACAAAAGTTTCACCAAGAATGTTCACTCTCATATTTCGTTCCTTTGAT 2086
                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99EP-00106656.
99EP-00111321.
2000US-0180687P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLANT SCI GMBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1042 A; 733
                                                                                                                                                                                                                                                                                                                                                                                                                                     16.6%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 271.8;
Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Σ,
                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                  1.8e-74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ronne
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 3896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U; 1 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                         92;
 2255
                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                            887
                                                                                                                                                                                                           2026
                                                                                                                                                                                                                                                              1966
                                                                                                                                                                                                                                                                                                                   1906
                                                                                                                                                                                                                                                                                                                                                                                               827
                                                  2206
                                                                                                    2146
                                                                                                                                                                                                                                                                                         947
                                                                                                                                                                                   987
                                                                                                                                                                                                                                      987
```

RESULT 5 AAS01096

TTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGG

417

```
밁
                                    ð
                                                                              밁
                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                  The present sequence for corn LCAT (lecithin:cholesterol acyltransferase-CC like) BST sequence #3 is closely related to the Arabidopsis thaliana CC LCATZ sequence. Several novel polynucleotides encoding the plant sterol CC cayltransferases LCAT (AASO01081-AASO1104, AASO1341) and ACAT (acyl CC cayltransferases LCAT (AASO01081-AASO1104, AASO1341) and ACAT (acyl CC cAy.cholesterol acyltransferase-like; AASO1311-AASO1319) are described. A CC yeast LCAT related open reading frame, LRO1 gene sequence (AASO1342), and CC polynucleotides encoding LCAT or ACAT are used to produce LCAT or ACAT (polyneptides. They can also be used in a recombinant construct to construct is used to increase or ACAT are used to produce LCAT or ACAT CC construct is used to increase or decrease the sterol content of the host Ccell or plant. It can be used to alter oil production of the cell or CC supplements, or in pharmaceutical compositions for lowering cholesterol. The oil can be used in foods e.g. margarine, butter, cooking oil, and CC construct self in seed as a food product, or as nutritional or dietary CC supplements, or in pharmaceutical compositions for lowering cholesterol. The oil can be used in foods e.g. margarine, butter, cooking oil, and CC cookies, snack bars, confections, chocolates, and beverages. The cookies, snack bars, confections, chocolates, and beverages. The alteration in sterol content and/or composition can also provide a plant or the plant can be tered content and/or composition can also provide a plant or the plant can be used in finance to attered amarga.
                                                                                                                                                       Query Match
Best Local S
Matches 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase-like polypeptides, for modifying the sterol content and oil production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferacyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking nutritional supplement; dairy product; food product; salad dressing; corn; Arabidopsis thaliana; expressed sequence tag; EST; ss.
                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 5; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAS01096 standard; cDNA; 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lassner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200116308-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (MONS ) MONSANTO
                                                                                                                                                                                                                                                                          tolerance to stress and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-169010/17
                                        298
                                                                                                                     238
    95
                                                                                                                                                           222;
                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                    328
                                                                                                      ACTAAGCTTCTTCTGCTGCTGCTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAAT
                                        CANACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAA 357
    CAGATAGACCATCCCGAATGCAAGTCAAGGCCTGATAGTGGTC-TTCTGCAATTACAGAG
                                                                            Van
                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acyltransferase
                                                                                                                                                                                                                                    BP; 86 A; 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000WO-US023863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0152493P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eenennaam
                                                                                                                                                                         10.7%;
                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LCAT EST sequence
                                                                                                                                                         <u>.</u>.
                                                                                                                                                                         Score 176.2;
Pred. No. 9.
                                                                                                                                                                                                                                    73 G; 101 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                          insect damage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP
                                                                                                                                                         Mismatches
                                                                                                                                                         .2e-45;
les 58;
                                                                                                                                                                                           DB 5;
                                                                                                                                                                                             Length 328;
                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acyltransferase;
pil; cooking oil;
                                                                                                                                                           1,
                                                                                                                                                           Gaps
```

```
Ś
                          밁
                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                 Matches 152;
                                                                                             Query Match
Best Local :
                                                                                                                                                         The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Lycopersicon esculentum PDAT nucleotide sequence
                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                          Claim 6; Page 97; 97pp; English.
                                                                                                                                                                                                                                                                                                                                                               Phospholipid:diacylglycerol acyltransferase enzymes in the bio pathway for triacylglycerol production and DNAs encoding them, producing triacylglycerol, or for transforming any cell or org
                                                                                                                                                                                                                                                                                                                                                                                                                                               Dahlqvist A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lycopersicon esculentum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lycopersicon esculentum PDAT nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAC64449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAC64449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (BADI ) BASF
                                                       1426
  1486
                                                                                                                                                                                                                                                                                                                                                                                                                       2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               phospholipid:diacylglycerol acyltransferase; triacylglycerol;
expressed sequence tag; fatty acid; oil content; ss.
                                                                                             Similarity
                                                                                                                                      709
                                              oil content.
 CATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAA 1545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCCATCAATGCTTGAGGAGAGAGATCTGTACTTTCACAA 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAA 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTGTAGAGTTTGGCATTGAAGCTAATGCAATTATCGCTGTTTCCGTATGATTGGAGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGACCCTGGTTATATAACAGGTCCTCTCTCTTCAGTATGGAAAGAATGGGTCAAATGG
                          CTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAGCATGAT-GTTCAGATGTA
                                                                                Conservative
                                                                                                                                   BP; 226 A; 121 C; 161 G; 201 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLANT SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0180687P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Stahl U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99EP-00106656.
99EP-00111321.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA; 709
                                                                                          6.78;
74.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lenman
                                                                               Score 110.4; 1
Pred. No. 1.1e
0; Mismatches
                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP
                                                                                                                                                                                                                                                                                                                                                                                                                                           ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Banas
                                                                               1.1e-23;
ches 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                               Þ
                                                                                                           BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ronne
                                                                                                      ΄ ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO:11b
                                                                                Indels
                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Stymne
                                                                                                         709;
                                                                                                                                                                                                                                                                                                                                                                  organism
                                                                                                                                                                                                                                                                                                                                                                             biosynthetic
nem, useful for
                                                                               1:
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                  ç
                                                    1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      477
                            59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213
                                                                             ۲,
```

S 밁 S

1486

CATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAA 1545

CTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAGCATGAT-GTTCAGATGTA

59

Query Match Best Local Similarity Matches 152; Conserv

Conservative

6.7%;

Score 110.4; Pred. No. 1.1e 0; Mismatches

1.1e-23; ches 51;

Indels Length

Gaps

1;

B

ω

709; ۲.

```
RESULT 7
ARC64439
ID AAC6
AXX PAC6
AXX PAC6
XXX PAC7
CXX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                               The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence represents the Lycopersicon
   Sequence
                                                            esculentum PDAT nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 6; Page 62; 97pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to increase oil content.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dahlqvist A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PDAT; phospholipid:diacylglycerol acyltransferase; triacylglycerol; TAG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAC64439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lycopersicon esculentum PDAT nucleotide sequence SEQ ID NO:12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BADI ) BASF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
   709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTACCTACAATGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTTCCAGGGACAAGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGA 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACAGCAGTTTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCGCAGTCTGGGAGCTTGATAAA 1629
   B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLANT SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0180687P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stahl U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99EP-00106656.
99EP-00111321.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
226 A; 120 C; 162 G; 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA; 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GMBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fatty acid; oil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Banas A,
   T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ronne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  content;
   U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119
```

```
RESULT 8
AASO1097
ID AASO
XX AASO
XX Leci
XX Leci
XX Leci
XX Corn
XX MO20
PN W020
PN W020
PF 30-A
XX (MON
XX (MON
XX (MON
XX Corn
XX (MON
XX (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                          The present sequence for corn LCAT (lecithin:cholesterol acyltransferase-CC like) EST sequence #4 is closely related to the Arabidopsis thaliana CC LCATZ sequence. Several novel polynucleotides encoding the plant sterol CC cayltransferases LCAT (AASO01081-AASO1104, AASO1341) and ACAT (acyl CC cAy.cholesterol acyltransferase-like, AASO1311-AASO1319) are described. A CC yeast LCAT related open reading frame, LRO1 gene sequence (AASO1342), and CC yeast LCAT related open reading frame, LRO1 gene sequence (AASO1342), and CC polynucleotides encoding LCAT or ACAT are used to produce LCAT or ACAT CC polypeptides. They can also be used in a recombinant construct to construct is used to increase or decrease the sterol content of the host CC construct is used to increase or decrease the sterol content of the host CC cell or plant. It can be used to alter oil production of the cell or CC cell or plant. It can be used to alter oil production of the cell or CC plant, preferably by increasing it. The oil of the plant or the plant CC itself is used as a food product, or as nutritional or dietary constructs, preferably by increasing it. The oil of the plant or the plant CC itself is used as a food product, or as nutritional or dietary coll can be used in foods e.g. margarine, butter, cooking oil, and CC dressings e.g. salad dressings, mayonnaise, cheese, processed meat, CC pasta, sauces, cereals, desserts, dips, baked goods, pastries, CC cooktes, sanck bars, confections, chocolates, and beverages. The CC alteration in sterol content and/or composition can also provide a plant Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase-like polypeptides, for modifying the sterol content and oil production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lassner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-AUG-2000; 2000WO-US023863.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200116308-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                corn; Arabidopsis thaliana;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Corn sterol acyltransferase LCAT EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAS01097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MONS ) MONSANTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard; cDNA; 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACAGCAGTTTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTACCTACAATGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTCCAGGGACAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGA 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAAGTGCATCTAAATATAGAGCATCAACATGGTGAAGATATCATTCCCAATATGACAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Van Eenennaam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0152493P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expressed sequence tag; EST; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119
```

Sequence 356 BP;

86 P 08 û

78

ဂ္

100

T; 0 Ģ

0 Other

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                      removing material.
The present invention describes a nucleotide sequence (I) derived from nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent acyltransferase polypeptide can produce fatty acid esters and/or fatty acid thioesters such as triacylglycerols, diacylglycerols,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol;
phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate;
acylated amino acid; structured lipid; fat-soluble molecule; gene; ds.
                                                                                                                                                                                 New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schizosaccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schizosaccharomyces pombe acyltransferase DNA sequence
                                                                                                                                           Claim 5;
                                                                                                                                                                                                                                           P-PSDB;
                                                                                                                                                                                                                                                                                  Dahlqvist A,
                                                                                                                                                                                                                                                                                                                                                                   29-MAY-2002;
                                                                                                                                                                                                                                                                                                                                                                                                28-MAY-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                            04-DEC-2003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      active membrane independent acyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-FEB-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADF47831
                                                                                                                                                                                                                                                                                                              (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                                                                                                                                                                                                                        2004-053268/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                           ADF47832
                                                                                                                                             SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCGCTGTTCCATACGATTGGAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTGTCTGGAAAGAGTGGCTTAAGTGGTGTTGAGTTTGGTATAGAAGCAAATGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAA----CAGGTCCTCTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCACAAATTAAAGTT 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCACAAGCTCAAGTT 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; 2002SE-00001581.
; 2002US-0383889P.
; 2003SE-00000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                             ij
                                                                                                                                                                                                                                                                                                                                                                                                2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry
                                                                                                                                                                                                                                                                                  Ghosal
                                                                                                                                           NO 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     enzyme; membrane-spanning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA; 1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.6%;
                                                                                                                                                                                                                                                                                  P,
                                                                                                                                          91pp; English
                                                                                                                                                                                                                                                                                  Lindqvist Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 109; DB 5
Pred. No. 2e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                    Banas A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fatty acid ester
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO:16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                   a a
```

```
RESULT 10
ADF47817
ID ADF477
XX ADF47
XX ADF47
XX Yeast
DT 26-FE
XX Yeast
XX Yeast
XX acylt
KW acylt
KW activ
KW fatty
KW ghosp
KW acyla
KW goosp
KW acyla
XX Sacch
PN WO200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carbohydrates and acylated anino acids. Also described: (1) a CC nucleotide sequence molecule (II) comprising at least one promoter region CC which functions in a host, where the promoter region is operably linked CC to at least one (I), which is operably linked to at least one non-CC translated region which functions in a host; (2) a vector comprising (II) or the vector; (4) producing an CC improved active membrane independent acyltransferase polypeptide, CC comprising providing the above host cell culture and harvesting the cost cell culture and recovering the improved active membrane independent acyltransferase polypeptide at least is an improved active membrane CC (4), where the polypeptide at least is an improved active membrane CC independent acyltransferase polypeptide and a stabiliser. The nucleic acid CC comprising the above polypeptide and a stabiliser. The nucleic acid CC molecule (I) and the polypeptide are useful in producing structured CC lipids or fat-soluble molecules, in removing undesirable fat or in CC modifying lipids present in animal and plant raw material. The present XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                          acyltransferase; enzyme; membrane-spanning region; active membrane independent acyltransferase; fatty acid ester; fatty acid ester; triacylglycerol, diacylglycerol; monoacylglycerol; phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate; acylated amino acid; structured lipid; fat-soluble molecule; yeast; gene
                                                                              Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                        Yeast membrane independent acyltransferase DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADF47817 standard; DNA; 1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1872 BP; 598 A; 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAGTGGCAGCGCTTTTATCGGGTGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCAATCAAATCTACTCTCTCTGGTGTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTAATGATCATATTGAAGCATTTATAAATATATCGGGATCTTTGATTGGAGCACCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACGTACTATTTTTTAAGTGGGTTGAAGCTGAGGGCTACGGAAATGGTGGACCGACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATATGCAAATTTAGAGGAACGTGATAAATATTTTTCAAAGTTAAAAATGTTCATTGAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCTGCAATTGGTTATGAGCCTAATAACATGTTAAGTGCTTCTTACGATTGGCGGTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 52.6; DB 12;
Pred. No. 4.1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; 405 G; 572 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1872;
                                                                                                                                                                                                                                                                                                                        SEQ
                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                        NO: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                          gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

문 Ś 밁 S 밁 5 뮻 S 밁 8

밁 ş 밁 S

710

ACTITCTGGAATGGCTGAGGCTAGAAATTGCACCA----AAACATTATTTGAAGTGGC

ACTTTATGAAATGGGTCGAGGCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGG

769

AACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGAT ATCTAGAAAGACGCGATAGGTACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATC AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA

649

487

AATTGAGTGGTGAAAAAGTTTGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTT

709

548

```
밁
                                                                                                                                                                                 CC acid thicesters such as triacylglycerols, diacylglycerols, waxesters, cc acid thicesters such as triacylglycerols, diacylglycerols, waxesters, cc acid thicesters such as triacylglycerols, diacylglycerols, waxesters, cc acylated carbohydrates and acylated amino acids. Also described: (1) a nucleotide sequence molecule (II) comprising at least one promoter region which functions in a host, where the promoter region is operably linked to at least one (I), which is operably linked to at least one for translated region which functions in a host; (2) a vector comprising (II) cc translated region which functions in a host; (2) a vector comprising (II) (2); (3) a host cell comprising (II) or the vector; (4) producing an cc improved active membrane independent acyltransferase polypeptide, cell culture and recovering the host cell and a growth medium preparing a host cell culture, culturing the host cell culture and harvesting the host cell culture membrane independent cc acyltransferase polypeptide; (5) a polypeptide obtained by the method in cc acyltransferase polypeptide; (6) an oligonucleotide comprising the above polypeptide at least is an improved active membrane cc independent acyltransferase polypeptide; (6) an oligonucleotide specifically hybridising to (I) under stringent conditions; and (7) a kit comprising the above polypeptide are useful in producing structured clipids or fat-soluble molecules; in removing undesirable fat or in condifying lipids present in animal and plant raw material. The present conditions used in the exemplification of the present invention.
                                                                                         Matches
                                                                                                                                  Query Match
                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 12; SEQ ID NO 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2004-053268/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-MAY-2002;
29-MAY-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-MAY-2003; 2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY RES AB
                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     present invention describes a nucleotide sequence (I) derived from
                                               428
                                                                                                                                                                                 1701
                                            TTGGCTATGAACCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P
                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2002SE-00001581.
2002US-0383889P.
2003SE-00000142.
                                                                                                                                                                                 B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ghosal
                                                                                                                                                                            516 A; 317 C; 401 G; 467 T; 0 U;
                                                                                                            3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lindqvist Y,
                                                                                       °.
                                                                                                            Score 49.4; DB 12;
Pred. No. 0.0004;
                                                                                       Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Banas A;
                                                                                         Indels
                                                                                                                                  Length 1701;
                                                                                                                                                                                 0 Other;
                                                                                       6
                                                                                       Gaps
```

a a

용 : 성

S 맑 á 밁 Ś

```
RESULT 11
AAC64431
ID AAC64
AC   밁
                              ð
                                                                                         밁
                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                             Query Match
Best Local S
Matches 162
                                                                                                                                                                                                                                                                                                                                                            The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content of this cell or organism. The present sequence encodes yeast (Saccharomyces
                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                            cerevisiae)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dahlqvist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PDAT; phospholipid:diacylglycerol acyltransferase; triacylglycerol; EST; expressed sequence tag; fatty acid; oil content; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAC64431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC64431 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-MAR-2000; 2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (BADI ) BASF PLANT SCI GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-JUN-1999;
                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                          organism and result is cell or organism. revisiae) PDAT
875
                                                                                              815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000-665012/64.
                                           488
                                                                                                                                               428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                            1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page 45-48; 97pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oil content
ATCTAGAAAGACGCGATAGGTACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATC
                                      AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCCTTTGAAACTGCTTTAA
                                                                                              TTGGCTATGAACCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                                            CAGTTCCAGCTCTAATTAGTGGTGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAATCAAATCTACTCTCTGGTGTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAACGAACACATAGATTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P,
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99EP-00106656
99EP-00111321
2000US-0180687P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                       B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cerevisiae PDAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Stahl
                                                                                                                                                                                                                                                                                            615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ġ
                                                                                                                                                                                                                 3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
                                                                                                                                                                                                                                                                                            A; 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English
                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                 Score 49.4; DB 3;
Pred. No. 0.00044;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              дB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Σ
                                                                                                                                                                                                                                                                                            478
                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Banas
                                                                                                                                                                                                                                                                                         ູດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    858
                                                                                                                                                                                                                                                                                         532 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO:1
                                                                                                                                                                                          161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ronne
                                                                                                                                                                                                                                         Length 1986;
                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Stymne
                                                                                                                                                                                             6
                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAG;
934
                                                                                            874
                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for
```

```
RESULT 12
AAC64441
ID AAC64
                                      The present invention describes an enzyme for catalysing (in an acyl-Colindependent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid:diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content this cell or organism. The present sequence represents the yeast (Saccharomyces cerevisiae) PDAT gene
  Sequence
                                                                                                                                                                                                                                                                                                                                                                  Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-APR-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                       Claim 6; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dahlqvist A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAC64441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAC64441 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PDAT; phospholipid:diacylglycerol acyltransferase; triacylglycerol; TAG; 
EST; expressed sequence tag; fatty acid; oil content; ds.
                                                                                                                                                                                                                                                                                                                                                  increase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (BADI ) BASF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000-665012/64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB24266.
  1986
                                                                                                                                                                                                                                                                                                                                                    oil content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATCAAATCTACTCTCTCTGGTGTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTTTATGAAATGGGTCGAGGCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGTTCCAGCTCTAATTAGTGGTGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTAACGAACACATAGATTCATTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTITCTGGAATGGCTGAGGCTAGAAATTGCACCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATTGAGTGGTGAAAAAGTTTGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTCCGTGGCGGCCCTTCTATAGTATTTTGCCCATTCAAIGGGTAATAAIGTCTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0180687P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PLANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
  BP;
                                                                                                                                                                                                                                                                                                         77-81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Stahl U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cerevisiae PDAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99EP-00106656.
99EP-00111321.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence tag;
613 A; 366 C; 479 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                                                                                                                                                                                                                                                                                       97pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lenman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fatty acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               묭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Banas
  528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ID NO:1b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Þ
  T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ronne
  U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAACATTATTTGAAGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                               for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        994
                                                                                        e
E
```

Query Match Best Local Similarity

3.0%;

Score 49.4; Pred. No. 0.

4; DB 3; 0.00044;

Length 1986;

```
RESULT 13
     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                      01-APR-1999;
10-JUN-1999;
07-FEB-2000;
The present invention describes an enzyme for catalysing (in an acyl-CoA-independent reaction) the transfer of fatty acids from phospholipids to diacylglycerol in the biosynthetic pathway for the production of triacylglycerol (TAG). The enzyme is designated as phospholipid diacylglycerol acyltransferase (PDAT). The enzyme and the nucleotides encoding them are useful for producing TAG and/or TAG with uncommon fatty acids. The enzyme and the nucleotide are also useful for
                                                                                                  Claim
                                                                                                                                 Phospholipid:diacylglycerol acyltransferase enzymes in the biosynthetic pathway for triacylglycerol production and DNAs encoding them, useful for producing triacylglycerol, or for transforming any cell or organism to
                                                                                                                                                                                                                        Dahlqvist
                                                                                                                                                                                                                                                                                                                      28-MAR-2000; 2000WO-EP002701
                                                                                                                                                                                                                                                                                                                                               12-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                       WO200060095-A2
                                                                                                                                                                                                                                                                                                                                                                                            Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAC64440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC64440
                                                                                                                                                                                                                                                (BADI ) BASF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1055
                                                                                                                                                                                    2000-665012/64.
)B; AAB24265.
                                                                                                                                                                                                                                                                                                                                                                                                                   phospholipid:diacylglycerol acyltransferase; triacylglycerol;
expressed sequence tag; fatty acid; oil content; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               428
                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      162;
                                                                                                                          oil content.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGTTCCAGCTCTACTTAGTGGTGAAATG 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTAACGAACACATAGACTCATTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCCAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGGCTATGAACCCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAATCAAATCTACTCTCTCTGGTGTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCCTTCTTGGTTCTGTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTITATGAAATGGGTCGAGGCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCA----AAACATTATTTGAAGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACTCCGTGGCGGCCCTTCTATAGTATTTGCCCCATTCAATGGGTAATAATGTCTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCTAGAAAGACGCGATAGGTACTTTACGAAGCTAAAGGAACAATCGAACTGTTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         {	t AATTGAGTGGTGAAAAAGTTTGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTT}
                                                                                                                                                                                                                       Ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                      99EP-00106656.
99EP-00111321.
2000US-0180687P.
                                                                                                                                                                                                                                                PLANT SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                                                                                                                       Stahl
                                                                                               71-74; 97pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        cerevisiae PDAT
                                                                                                                                                                                                                                                                                                                                                                                              cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entry)
                                                                                                                                                                                                                                                GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1986
                                                                                                                                                                                                                       Lenman
                                                                                              English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORF
                                                                                                                                                                                                                        ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleotide
                                                                                                                                                                                                                        Banas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  750
                                                                                                                                                                                                                       Þ
                                                                                                                                                                                                                        Ronne
                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                       Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ
                                                                                                                                                                                                                        Stymne
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ID NO:4a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                TAG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
```

```
밁
                 δ
                                           문
                                                                     Ş
                                                                                                   밁
                                                                                                                       Ś
                                                                                                                                                     밁
                                                                                                                                                                           Ś
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                នន្តន្តន្តន្ត្
                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                           Query Match
Best Local Sim
Matches 162;
                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                  transforming any cell or organism in order to be expressed in this cell or organism and result in an altered, preferably increased oil content this cell or organism. The present sequence represents the yeast (Saccharomyces cerevisiae) PDAT ORF (Open reading frame) nucleotide
1115
                                                  1055
                                                                                                                                                                             548
                        722
                                                                          662
                                                                                                    995
                                                                                                                            809
                                                                                                                                                      935
                                                                                                                                                                                                        875
                                                                                                                                                                                                                                  488
                                                                                                                                                                                                                                                           815
                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                     AACTCCGTGGCGGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGAT
                                                                                                                                                                                                                                                           TTGGCTATGAACCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                                                                                                                                                                               CAGTTCCAGCTCTAATTAGTGGTGAAATG
                        CAATCAAATCTACTCTCTCTGGTGTAACG
                                                  TTAACGAACACATAGATTCATTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGG
                                                                            TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGG
                                                                                                    ACTTTATGAAATGGGTCGAGGCTGAAGGCCCTCTTTACGGTAATGGTGGTCGTGGCTGGG
                                                                                                                            ACTITCTGGAATGGCTGAGGCTAGAAATTGCACCA-----AAACATTATTTGAAGTGGC
                                                                                                                                                      AATTGAGTGGTGAAAAAGTTTGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTT
                                                                                                                                                                                                        ATCTAGAAAGACGCGATAGGTACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATC
                                                                                                                                                                                                                                 AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA
                                                                                                                                                                                                                                                                                                                                                                1986
                                                                                                                                                                                                                                                                                                           3.0%;
ilarity 49.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                               615
                                                                                                                                                                                                                                                                                                                                                              P
                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                           Score 49.4; DB 3;
Pred. No. 0.00044;
D; Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                              ü
                                                                                                                                                                                                                                                                                                                                                               478
                                                                                                                                                                                                                                                                                                                                                              ç,
                                                                                                                                                                                                                                                                                                                                                               532
1143
                        750
                                                                                                                                                                                                                                                                                                                                                               Η;
                                                                                                                                                                                                                                                                                                             161;
                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                    Length 1986;
                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                Other;
                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                           this cell
                                                                                                                                                                                                                                                                                                             Gaps
                                                  1114
                                                                                                                                                                                                                                                            874
                                                                                                     1054
                                                                                                                              661
                                                                            721
                                                                                                                                                      994
                                                                                                                                                                                607
                                                                                                                                                                                                        934
                                                                                                                                                                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                               õ.
```

acyl CoA:cnowers, dairy nutritional supplement; dairy veast; Arabidopsis thaliana; WPI; 2001-169010/17 P-PSDB; AAU00464. Saccharomyces cerevisiae. Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; yeast; Arabidopsis thaliana; LCAT related open reading frame 1; LRO1; ds Lassner M, 30-AUG-1999; 30-AUG-2000; WO200116308-A2 Yeast LCAT 31-MAY-2001 AAS01342; AAS01342 (MONS) MONSANTO CO standard; related open reading frame 1 (LRO1) gene Van Eenennaam 2000WO-US023863 (first 99US-0152493P Location/Qualifiers /product= .1986 DNA; entry) 1986 A, "LRO1" ₽P

```
ADF47516
ADF477
AC ADF47
AC ADF47
AC ADF47
XX Y 26-FE
XX Y 26-FE
XX X ACYlt
XW ACTIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CC A rat ACAT-like CDNA sequence (AASO1105) is also described. The CD polynucleotides encoding LCAT or ACAT are used to produce LCAT or ACAT CC polypeptides. They can also be used in a recombinant construct to construct is used to increase or decrease the sterol content of the host CC construct is used to increase or decrease the sterol content of the host CC cell or plant. It can be used to alter oil production of the cell or CC cell or plant. It can be used to alter oil production of the cell or CC plant, preferably by increasing it. The oil of the plant or the plant CC itself is used as a food product, or as nutritional or dietary CC supplements, or in pharmaceutical compositions for lowering cholesterol. CC The oil can be used in foods e.g. margarine, butter, cooking oil, and CC dressings e.g. salad dressings, mayonnaise, cheese, processed meat, CC pasta, sauces, cereals, desserts, dips, baked goods, pastries, CC cookies, sanck bars, confections, chocolates, and beverages. The CC alteration in sterol content and/or composition can also provide a plant or the content and the content
acyltransferase; enzyme; membrane-spanning region;
active membrane independent acyltransferase; fatty acid ester;
fatty acid thioester; triacylglycerol; diacylglycerol; monoacylglycerol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (LRO1) is described in an invention relating to several novel polynucleotides encoding the plant sterol acyltransferases LCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 5; Page 116-117; 127pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase-like polypeptides, for modifying the sterol content and oil production
                                                                                                             Yeast acyltransferase
                                                                                                                                                                 26-FEB-2004
                                                                                                                                                                                                                     ADF47816
                                                                                                                                                                                                                                                                      ADF47816 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (lecithin:cholesterol acyltransferase-like; AAS001081-AAS01104, AAS01314
and ACAT (acyl CoA:cholesterol acyltransferase-like; AAS01311-AAS01319)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present sequence encou
(LRO1) is described in an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                   722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        428
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAATCAAATCTACTCTCTCTGGTGTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTGAGTGGTGAAAAAGTTTGTTTAATTGGACATTCTATGGGTTCTCAGATTATCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCTAGAÃAGACGCGÁTAGGTÁCTTTACGÃAGCTAÃAGGAACAAATCGÃÁCTGTTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGGCTATGAACCCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCA----AAACATTATTTGAAGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACTCCGTGGCCGCCCTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGTTCCAGCTCTAATTAGTGGTGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTAACGAACACATAGATTCATTAATGCAGCAGGGACGCTTCTGGGCGCTCCAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                 (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615 A; 361 C; 478 G; 532 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                      DNA; 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.0%;
                                                                                                                                                                 entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          encoding
                                                                                                             nucleotide sequence SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                         ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 49.4; DB 5;
Pred. No. 0.00044;
0; Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for yeast LCAT related
                                                                                                                                                                                                                                                                                                                                                                                                                                                     750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1986;
                                                                                                                NO:1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    open reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAS01341)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          frame,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       994
```

밁 Ś 밁 Ś

ATCTAGAAAGACGCGATAGGTACTTTACGAAGCTAAAGGAACAAATCGAACTGTTTCATC

934

AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA

```
CC acyltransferase polypeptide can produce fatty acid esters and/or fatty CC acid thioesters such as triacylglycerols, diacylglycerols, waxesters, CC monoacylglycerols, phospholipids, glycolipids, lysolipids, waxesters, CC acylated carabohydrates and acylated amino acids. Also described: (1) a comcleotide sequence molecule (II) comprising at least one promoter region which functions in a host, where the promoter region is operably linked to at least one (II), which is operably linked to at least one non-cc translated region which functions in a host; (2) a vector comprising (II) (2); (3) a host cell comprising (II) or the vector; (4) producing an cimproved active membrane independent acyltransferase polypeptide, (CC comprising providing the above host cell and a growth medium preparing a comprising providing the host cell culture and harvesting the comprising the least or an improved active membrane independent acyltransferase polypeptide, (5) a polypeptide obtained by the method in cell culture and recovering the improved active membrane independent acyltransferase polypeptide; (6) an oligonucleotide comprising the above polypeptide and a stabiliser. The nucleic acid completed in and the polypeptide are useful in producing structured clipids or fatt-soluble molecules, in removing undesirable fat or in codifying lipids present in animal and plant raw material. The present conditions is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid residue of the membrane-spanning region has been deleted and/or substituted as compared to the original acyltransferase polypeptide, where the encoded active membrane independent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New nucleotide sequence encoding an improved acyltransferase polypeptide, useful for producing structured lipids or fat-soluble molecules, in removing undesirable fat or in modifying lipids in animal or plant raw
                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleotide sequence encoding an acyltransferase polypeptide comprising least one membrane-spanning region. (I) encodes an improved active membrane independent acyltransferase polypeptide in which at least one
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-MAY-2002;
29-MAY-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           phospholipid; glycolipid; lysolipid; waxester; acylated carbohydrate;
acylated amino acid; structured lipid; fat-soluble molecule; yeast; g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes a nucleotide sequence (I) derived from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 5; SEQ ID NO 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-MAY-2003; 2003WO-SE000870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SCAN-) SCANBI SCANDINAVIAN BIOTECHNOLOGY RES
                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2004-053268/05
DB; ADF47818.
                                                                                                                                                                                                                                                                                                                                    1986
                                                                TTGGCTATGAACCCAATAAAATGACGAGTGCTGCGTATGATTGGAGGCTTGCATATTTAG
                                                                                                                            Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2002SE-00001581.
2002US-0383889P.
2003SE-00000142.
                                                                                                                                                                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                    615 A; 361 C; 478 G;
                                                                                                                                                                                                                                3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lindqvist Y,
                                                                                                                                                                                                   o
,
                                                                                                                                                                                                                            Score 49.4; DB 12;
Pred. No. 0.00044;
                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Banas A;
                                                                                                                                                                                                                                                                                                                                    T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               æ
                                                                                                                                                                                                                                                                                                                                    U; 0 Other;
                                                                                                                                                                                                                                                            Length 1986;
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                6
                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene;
                                                                   874
                                                                                                                                487
547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ם
```

THIS PAGE BLANK (USPTO)

```
-4
```

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic - nucleic search, using sw model
Issued Patents NA:*

1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*

6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            November 8, 2005, 19:29:33 ; Search time 301 Seconds (without alignments) 8920.698 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                              1202784 seqs, 818138359 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 atgggagcgaattcgaaatc.....ttgataaagtgggtattaa 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-651-651-4
1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                      2405568
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

a a a 25	000	c 20 c 21	15 c 16 c 17	c 111 113	c 10 8	C 7 6 5	α ; 4 ω 2 μ ;	Result No.
34. 4.4.		34.8 34.6	34. 34. 888	3 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	37.6 36.6		47.2 40.6 40.6 38.8	Score
	2222	2.1	2221	ا طرط طرط.	222 222 222	222 440	2222	Query Match
511 511	19412 511 511	79595 148794 832	477 3926 7218 58844	5829 9828 154023	4465 581 832	7218 314798 1141	2106 1664976 1664976 1664976	Length I
4 4 US		4 US 4 US 4 US	4 US		4 US	1 US 4 US 4 US	A US	DB ID
-09-433-8268-443 -09-604-287A-443 -09-834-759-443	-09-949-016-17094 -09-389-681-443 -09-620-405B-443	1-09-949-016-15318 1-09-949-016-12751 1-09-621-976-2813	US-09-134-001C-1521 US-09-710-279-4015 US-08-232-463-14 US-09-949-016-13769	US-08-809-254A-4 US-08-961-527-41 US-09-949-016-17057 US-09-710-279-2485	US-09-949-016-2027 US-09-621-976-2439 US-09-621-976-2813	US-08-232-463-14 US-09-949-016-13539 US-09-806-708B-22	US-09-248-796A-1147 US-08-916-421B-1 US-09-692-570-1 US-09-639-207-13	
Sequence 443, App Sequence 443, App Sequence 443, App	17094		Sequence 1521, Ap Sequence 4015, Ap Sequence 14, Appl Sequence 13769, A		222	14, 135	Sequence 1147, Ap Sequence 1, Appl: Sequence 1, Appl: Sequence 13, Appl	Description

റ	ი		ი	ი												ი
5	44	43	42	41	40	39	38	37	36	ω 5	34	33	32	31	30	29
ω ω	33	33	33	33.8	34	34	34	34	34	34	34	34	34	34	34	34
œ	œ	œ	&	.89	່ນ	'n	N	N	'n	N	N	'n	2	4.	4.	4.
2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
32	32				20	20				20	20	20	10			
321022	321022	2115	601	109	203475	203475	203475	203475	203475	203475	203475	203475	103750	2034	1560	511
4	4	4	4	4	4	4.	4	4.	4	4	4	4	4.	4	4.	4
US-09-949-016-1416	US-09-949-016-11852	US-09-328-352-1411	US-09-949-016-84846	US-09-949-016-20003	US-09-949-016-17229	US-09-949-016-1722	US-09-949-016-1722	US-09-949-016-17226	US-09-949-016-14519	US-09-949-016-1451	US-09-949-016-14517	US-09-949-016-1451	US-09-949-016-1331	US-09-328-352-3700	US-,09-799-451-680	US-09-551-621-443
9-60	9-60	09-3	9-9	9-60	2-60	9-60	9-60	9-6	9-60	9-60	9-6	9-60	9-60	09-3	09-7	9-5
149-	149-	128-	149-	149-	149-	149-	149-	149-	149-	149-	149-	149-	149-	28-	-66	51-
910	016	352	016	016	016	910	016	016	910	016	016	016	910	352	451	621
-14]	-118	-141	-848	-200	-17	-173	-172	-172	-14	-149	-146	-149	-133	-37(-680	-443
991	352	Ξ	346	03	229	228	227	226	519	518	517	516	319	ŏ		w
'n	ſ	Į.	ທ	m	(A)	Ś	'n	ξΩ.	ທ	'n	'n	ťΩ	'n	'n	m	CC.
egu	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ	equ
Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence
														3700		443
14166	11852	1411,	84846	20003	17229	17228	17227	17226	14519	14518	14517	14516		•	•	•
` >>	, Þ	Ą	, A	` >	, A	` >	` ⊅	` >	` >	, Þ	,	,	` ≽	Ą	App	фp

ALIGNMENTS

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-916-421B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER AND FEATURE NAME/KEY: misc feature LOCATION: (98120)..(98120) OTHER INFORMATION: n equals a OTHER INFORMATION: n equals 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/08/916,421B
CURRENT FILING DATE: 1997-08-22
PRIOR APPLICATION NUMBER: US 60/024,428
PRIOR FILING DATE: 1996-08-22
NUMBER OF SEQ ID NOS: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Bult et al. TITLE OF INVENTION: Complete Genome Sequence of the Methanogenic Archaeon, Methanocou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILE REFERENCE: PB275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 16
TYPE: DNA
                                                                                                                                                        NAME/KEY: misc feature
LOCATION: (148948)...(148948)
OTHER INFORMATION: n equals
                                                                                      NAME/KEY: misc_feature
LOCATION: (163385)..(163385)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                               LOCATION: (98343)..(98343)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: (98266)..(98266)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: (84808)..(84808)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Methanococcus jannaschii
            NAME/KEY: misc feature
LOCATION: (191989)..(191989)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals
                                                                                                                                                                                                                                       OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                             AME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1, Application US/08916421B
). 6503729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1664976
                                                                                                                                                                                                                                                                                                                                             misc_feature
(98343)..(98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           걺.
                                                                                                                                                                                                                                                            (103998) . (103998)
                                                                                                                                                                                                                                                                                                                                                                                                                                           m18C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (84773) .. (84773)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ရ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (98239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATATTAGTGGATCTTCTTTGGGTACACCAAAGGCTATCCCAGCATTAATTTCTGGTGAAA 1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1242
                                                                                                                                                                                                                                                                                             feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (98239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (28222)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                equals
                                                                                                                                                                                                                                            ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
                    'n
                                                                                           ŗ
                                                                                                                                                                  ۲
                                                                                                                                                                                                                                          ú
                                                                                                                                                                                                                                                                                                                 Ĺ
                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ί.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ņ
                    ú
                                                                                           ú
                                                                                                                                                                  ú
                                                                                                                                                                                                                                          ú
                                                                                                                                                                                                                                                                                                                 ú
                                                                                                                                                                                                                                                                                                                                                                                        ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ņ
                      ö
                                                                                                                                                                  or
                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                           õ
                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc
LOCATION: (713)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc
LOCATION: (559]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER
                                                                                                                                                                                                                                       NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OCATION:
misc_feat
(1084830)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (191995)..(191995)
```

OTHER INFORMATION: n equals a NAME/KEY: misc feature LOCATION: (741684). (741684) OTHER INFORMATION: n equals a NAME/KEY: misc feature LOCATION: (779455)...(779455) OTHER INFORMATION: n equal-NAME/KEY: misc for NAME/KEY: misc feature
LOCATION: (779676)..(779676)
OTHER INFORMATION: n equals
NAME/KEY: misc feature
LOCATION: (855539)..(855539) NAME/KEY: misc_feature LOCATION: (871619)..(871619) OTHER INFORMATION: n equals OTHER INFORMATION: NAME/KEY: misc_feature LOCATION: (682442)..(682442) NAME/KEY: misc_feature LOCATION: (312993)..(312993) LOCATION: (231980)..(231980, OTHER INFORMATION: n equals a, OTHER INFORMATION: n equals OTHER INFORMATION: n equals OTHER INFORMATION: n equals OTHER INFORMATION: n equals OTHER INFORMATION: LOCATION: (559241)
OTHER INFORMATION: OCATION: (559167).. (559167) OTHER INFORMATION: n equals OTHER INFORMATION: THER INFORMATION: n equals OTHER INFORMATION: n equals OTHER INFORMATION: OTHER INFORMATION: ION: (309418)..(309418) INFORMATION: n equals INFORMATION: n equals misc feature (309398)..(309398) ORMATION: n equals a, (657081) . . (657081) (312837) . . (312837) (713652)..(713652))RMATION: n equals (657203) .. (657203) (600992)..(600992) (674435) . . (674435 (559241) . . (559241) $(319\overline{2}26)..(319226)$ (234187) .. (234187) feature feature feature reature feature feature n equals n equals n equals n equals n equals a, n equals a, (234814) (234220) a, ø a, ā gi Y a a a a a a, a, a, a, a а, a, a, ø a 'n , ŗ Ç ŗ ŗ ú ŗ ŗ ζ, ŗ ū ŗ ŗ ŗ ٦ ŗ Ĺ ŗ ū ŗ Ç ņ ç 'n ç ú ú ņ ç ú ç ú ú ç ó ú ō ņ ō ņ ū ō o ņ ņ 8 ę õ or õ ç õ õ õ õ or r o R õ õ õ or õ õ ç ω 9 g 9 ω ω ω ω ω ω ω ω ω ω Ω g g g ω Θ

```
US-09-692-570-1
; Sequence 1, Application US/09692570
; Patent No. 6797466
; GENERAL INFORMATION:
                                                                                                                          S
                                                                                                                                                      В
                                                                                                                                                                            Ś
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                      S
                                                                                                    В
                                                             RESULT 3
                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Sim:
Matches 118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (1603734)...(1603734)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc feature
LOCATION: (1637998)...(1637998)
OTHER INFORMATION: n equals a, t
APPLICANT: Bult et al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: "LEO L. (1470091) LOCATION: (1470091)...(1470091) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (1569020) ...(1569020)
                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (1664854)..(1664855)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (1349491)..(1349491)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: (1313224)..(1313224)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (1313224)..(1313224)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (1310988)..(1310988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (1130881)..(1130881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (1602912)..(1602912)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (1119881)..(1119881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (1349473)..(1349473)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc
                                                                                                                                                                                                                                                           1220277
                                                                                                                                                                                                                                                                                                               1220217
                                                                                                      1220457
                                                                                                                                                                                                                                                                                                                                       330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION: n
                                                                                                                             570
                                                                                                                                                                                                                                 450
                                                                                                                                                                                                                                                                          390 TACTGTCTGGAAAGAGTGGCTTAAGTGGTGTTGTTTGGGTATAGAAGCAAATGCAAT 449
                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                        GATAAAATGTAATGGATGTTATAAAAGAGATGTTGAGATTTTGCAAAGAAGTATGTCCAAC 1220336
                                                                                                                             AGTATTT 576
                                                                                                                                                                              CTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTAT
                                                                                                                                                                                                       TGTCGCTGTTCCATACGATTGGAGATTGTCACCAACCAATTGGAAGAGCGTGACCTTTA
                                                                                                                                                                                                                                                                                                             TGGTTGTGTGTGTGTGTTTAGCATGTCCATTTGGAGCTATAAGAATTGATGGAGTAGC
                                                                                                                                                                                                                                                                                                                                      TGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1096846) . . (1096846)
                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       feature
                                                                                                    1220463
                                                                                                                                                                                                                                                                                                                                                                           2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                              Score 40.6; DB 4;
Pred. No. 3;
0; Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             o
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   မ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                        Length 1664976;
                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                              ٥,
                                                                                                                                                                                                                                                                                                                                                              Gaps
```

569

1220396

509

389

0,

```
SOFTWARE: PatentIn version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION:
Patent No. 6797466
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/692,570
CURRENT FILING DATE: 2003-01-14
PRIOR APPLICATION NUMBER: US 60/024,428
PRIOR FILING DATE: 1996-08-22
PRIOR APPLICATION NUMBER: US 08/916,421
PRIOR FILING DATE: 1997-08-22
NUMBER OF SEQ ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE REFERENCE: PB275C1
NAME/KEY: misc feature
LOCATION: (191989)..(191989)
OTHER INFORMATION: n equals
                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (103998)...(103998)
OTHER INFORMATION: n equals
                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (98343)..(98343)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (98266)..(98266)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature
LOCATION: (98239) ...(98239)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (98159)..(98159)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
NAME/KEY: misc_feature
LOCATION: (84808)...(84808)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc feature
LOCATION: (28272)..(28222)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA ORGANISM: Methanococcus jannaschii
                                                   FEATURE:
NAME/KEY: misc_feature
LOCATION: (163385)...(163385)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (98120)..(98120)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc feature
LOCATION: (84773)...(84773)
OTHER INFORMATION: n equals
                                                                                                     OTHER INFORMATION: n equals
                                                                                                                 FEATURE:
NAME/KEY: misc_feature
LOCATION: (148948)..(148948)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH: 1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (84812)..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Complete Genome Sequence of the Methanogenic Archaeon, Methanococ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (84812)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 jannaschii
                                                                                                                                                        ø
                                                                                                                                                                                                                                                                                                               a)
  a,
                                                    a,
                                                                                                      a,
                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
,
                                                                                                                                                                                                                                                                                                                                                                ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ζ,
  ŗ
                                                    ŗ
                                                                                                                                                        ŗ
                                                                                                                                                                                                        Ţ
                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                               ,
                                                                                                                                                                                                                                                                                                                                                                ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                     Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ç
  ņ
                                                    ņ
                                                                                                      ņ
                                                                                                                                                        ō
                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                             ú
                                                                                                                                                                                                                                                                                                               Ç
                                                                                                                                                                                                                                                                                                                                                                ů
                                                                                                                                                                                                                                                                                                                                                                                                                    Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ů
    ဝူ
                                                                                                                                                        õ
                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                얶
                                                                                                                                                                                                                                                                                                                                                                                                                    OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                    8
                                                                                                       ç
                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                  õ
  ω
                                                   ω
                                                                                                     ω
                                                                                                                                                        ω
                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
```

```
FEATURE:

NAME/KEY: misc feature

COATION: (559167)...(5:
                    FEATURE:
NAME/KEY: misc_feature
LOCATION: (682442)...(682442)
OTHER_INFORMATION: n equals
                                                            FEATURE:
NAME/KEY: m1sc_feature
LOCATION: (674435)...(674435)
OTHER INFORMATION: n equals
                                                                                                       NAME/KEY: misc feature
LOCATION: (657203)...(657203)
OTHER_INFORMATION: n equals
                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (657081)..(657081)
OTHER INFORMATION: n equals
                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (622708)..(622708)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (600992) . (600992)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (319226)..(319226)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (312993)..(312993)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: (312837)...(312837)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature
LOCATION: (309398)..(309398)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (234814)..(234814)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (234187)..(234187)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY: misc_feature
LOCATION: (231980)..(231980)
OTHER INFORMATION: n equals
FEATURE:
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                            LOCATION: (559167)..(559167)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (234220)..(234220)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (559741)..(559241)
DTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (191995)..(19
                                                                                                                                                                                                                               EATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION: n equals
                                                                 a,
                                                                                                            a
                                                                                                                                                    a,
                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                  a
'
                                                                                                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                       ŗ
                                                                 ŗ
                                                                                                           Ĺ
                                                                                                                                                    ŗ
                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                       ņ
                                                                 'n
                                                                                                           ú
                                                                                                                                                    ú
                                                                                                                                                                                             ú
                                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ů
                       è
                                                                  မှ
                                                                                                           ç
                                                                                                                                                    õ
                                                                                                                                                                                              ö
                                                                                                                                                                                                                                         ů
                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              얹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               မ္မ
                       ω
                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

```
F
                                                      ş
                                                                                  밁
                                                                                                         á
                                                                                                                                      밁
                                                                                                                                                             S
                                                                                                                                                                                        밁
                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                               2.5%;
Best Local Similarity 47.8%;
Matches 118; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (713652)...(713652)
OTHER INFORMATION: n equals a, t
FEATURE:
NAME/KEY: misc_feature
LOCATION: (741684)...(741684)
OTHER INFORMATION: n equals a, t
                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE: misc_feature
NAME/KEY: misc_feature
LOCATION: (1130881)..(1130881)
                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (1349473)..(1349473)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (1084830)..(1084830)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (1313224)..(1313224)
OTHER_INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (1096846)..(1096846)
OTHER_INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc feature
LOCATION: (871619)..(871619)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
NAME/KEY: misc_feature
LOCATION: (855539)..(855539)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (779455)...(779455)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (1310988)..(1310988)
OTHER_INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: (1119881)..(1119881)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY: misc_feature
LOCATION: (779676)..(779676)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EATURE:
                                 1220397
                                                                                   1220337
                                                                                                                                    1220277
        570
                                                          510
                                                                                                                                                               390
                                                                                                                                                                                                                 330
AGTATTT 576
                                 ATTTAATAAGCTTTACTATCTTTATGCAAATGCAAAATAATTCCTTAATTTTCCTATTTT
                                                                                                                                    GATAAAATGTAATGGATGTTATAAAAGAGATGTTGAGATTTTGCAAAGAAGTATGTCCAAC 1220336
                                                                                                                                                              TACTGTCTGGAAAGAGTGGCTTAAGTGGTGTTGAGTTTGGTATAGAAGCAAATGCAAT 449
                                                                                                                                                                                                               TGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTC
                                                          CTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCCTTCTAT
                                                                                  AGGAGCTATTAACAACCTTGAAGAAATATTAAATAATAAAATACAAAATACAGTGAATAA
                                                                                                            TGTCGCTGTTCCATACGATTGGAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTA 509
                                                                                                                                                                                        TGGTTGTGTTGTGTGCTTTAGCATGTCCATTTGGAGCTATAAGAATTGATGGAGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ā
                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                        Score 40.6; DB Pred. No. 3; 0; Mismatches
                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                               ί,
                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŗ
                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ú
                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Or
T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                           ú
                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                G
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                        129;
                                                                                                                                                                                                                                                                 Length 1664976;
                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                        <u>,</u>
                                                                                                                                                                                                                                        Gaps
                                                           569
                                                                                                                                                                                                                 389
                                 1220456
                                                                                   1220396
                                                                                                                                                                                        1220276
                                                                                                                                                                                                                                        0
```

밁

1220457 CGTAATT 1220463

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                          US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                 Sequence 14, Application US/08232463 Patent No. 5670367 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.4%;
Best Local Similarity 56.2%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: 1
SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 13, Application US/09639207 Patent No. 6815575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/148,934
PRIOR FILING DATE: 1999-08-12
PRIOR APPLICATION NUMBER: US 60/148,933
PRIOR FILING DATE: 1999-08-12
PRIOR APPLICATION NUMBER: US 60/177,047
PRIOR FILING DATE: 2000-01-18
PRIOR FILING DATE: US 60/205,720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Synthetic DNA-09-639-207-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PILE REFERENCE: 06618-686001
CURRENT APPLICATION NUMBER: US/09/639,207
CURRENT FILING DATE: 2000-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Benzer, Seymour
TITLE OF INVENTION: ANIMAL MODEL OF POLYGLUTAMINE
TITLE OF INVENTION: TOXICITY, METHODS OF USE, AND MODULATORS
TITLE OF INVENTION: TOXICITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                 APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 486
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0
                                                                                           COUNTRY: USA
ZIP: 22313-0299
                                                                                                                                                             ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 2000-05-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                              Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTTGTTGTC 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NOS: 69
FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGGGTTGAC 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCCTTCCTGTTTCTGAGGGAACTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTTGGTTCTGTTGAGG
                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kazemi-Esfarjani, Parsa
 PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 38.8; DB 4;
Pred. No. 0.045;
"" matches 57;
                                                                                                                                                                   Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4; Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OF POLYGLUTAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
```

```
RESULT 6
US-09-949-016-13539
                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-232-463-14
                                                  GENERAL INFORMATION:
APPLICANT: VENTER, J. Craig et al.
APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTIC
FILE REFERENCE: CL001307
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR APPLICATION NUMBER: 60/237,768
PRIOR APPLICATION NUMBER: 60/237,768
                                                                                                                                                                                                                                               Sequence 13539, Application US/09949016
Patent No. 6812339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORWATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 304
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMMEDIATE SOURCE:
CLONE: pTZgpt-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 2.4%; So Local Similarity 3.2%; Pre Local Similarity 3.2%; Pre les 11; Conservative 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (703)836-9300
TELEFAX: (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
FILING DATE: 2000-10-03
APPLICATION NUMBER: 60/231,498
FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                               1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546 AAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCCATTCAATGGGTAATAATGTCTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 486 CAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTTGAAACTGCTTT 545
                                                                                                                                                                                                                                                                                                                                                                                                        GTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTC 830
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAAATCTACTCTCTGGTGTAACGTTTGGCCCTTCCTGTTTCTGAGGGAACTGCTCGGTT 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGGCAAT 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGGCTTGA 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             899149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pTZgpt-F1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 38.6; DB 1;
Pred. No. 0.33;
90; Mismatches 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                           DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      605
```

```
밁
                                                á
                                                                                   밁
                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-806-708B-22/c
; Sequence 22, Application US/09806708B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GRGANISM: Human
FEATURE:
FEATURE:
FACTURE:
FORMATION: (1)...(314798)
THER INFORMATION: n = A,T,C or
US-09-949-016-13539
                                                                                                                                                                                                                     US-09-806-708B-22
                                                                                                                                                                                                                                                                                                                                                PATENT NO. 6784342

GENERAL INFORMATION:
APPLICANT: The University of British Columbia
TITLE OF INVENTION: Regulation of Embryonic Transcription in Plants
FILE REFERENCE: 4810-58741
CURRENT APPLICATION NUMBER: US/09/806,708B
CURRENT FILING DATE: 2001-04-03
PRIOR APPLICATION NUMBER: US 60/147,133
PRIOR FILING DATE: 1999-08-04
NUMBER OF SEQ ID NOS: 23
SOFTWARE: PATENTIN VERSION 3.0
SEQ ID NO 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 207012
SOFTWARE: PastSEQ for Windows Version 4.0
SEQ ID NO 13539
LENGTH: 314798
                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.4%;
Best Local Similarity 46.7%;
Matches 122; Conservative
                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                 NAME/KEY: promoter LOCATION: (1)..(114 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                   TYPE: DNA
TYPE: DNA
ORGANISM: Artificial sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      138072 CTACTGTTAACTTTGCAATCTCTTATGAATCATTGTTTTTGTCACTGTACCTCATTTGCT 138131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        760
                                                                                                                  488 AATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAA 547
                                                                                                                                                                    Similarity
                 BWKHSWCNNNNNNNNNNNNNNNNNTWCHYTTANABBCYRANNNNAAARMARTCNNYMHAAVTT
                                                  AACTCCGTGGCGGCCCTTCTATAGTATTTGCCCCATTCAATGGGTAATAATGTCTTCAGAT
                                                                                 RHHTRTCRRTKYNNNNNARTVYWYHHAARRWMNAWWTRTNNNNNNNNNNNNNACRNTRTWWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGAATCTTTGCACATTACT 138332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATCTATAGATTGCAAATGATCACTCAATCTAATTCAACTGCTAGACTAGTAAGATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGTTTCTGAGGGAACTGCT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTCAAGGGGGCTCTTTTGTACTGAAGTGTTTATTTACTTTAATGTAAGCATGTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCTTCTTGGTTGAGGCAATCAAATCTACTCTCTGGTGTAACGTTTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAAAAATGTTCTATAAAGTGTAGAGCTCTCTTTCCATATGTGGTACATTTTTAGGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCA 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCC 579
                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                    (1141)
                                                                                                                                                                                                                                   consensus sequence of A.t., L.a.,
                                                                                                                                                                    9.68;
                                                                                                                                                 3%; Score 38.2; DB 4;
%; Pred. No. 0.13;
280; Mismatches 405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 38.6; DB 4; Length 314798; Pred. No. 4.5; 0; Mismatches 139; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G
                                                                                                                                                                                Length 1141;
                                                                                                                                                   Indels
                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                    B.n. FAE1
                                                                                                                                                 ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                  607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        699
                                                                                   825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                 ; TYPE: DNA
; ORGANISM: Human
US-09-949-016-2027
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 8
US-09-949-016-2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
Query Match
Best Local Similarity
Matches 67; Conser
                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        644
                                                                                                                                                                                                                                                                                                                                                                                                      2027, Application US/09949016
o. 6812339
   Conservative
            2.3%;
```

δ

```
608 ACTITICIGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGGCTTGATC
                                                                                                                                                                                                                                                                                                                       NNNNNKAWYYRTKTVAWCNNRYYYDTAVWTBKRNYKYCYAYBWYYBMYMGKHHWBWWRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATGTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTT 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TMWWRHWNNNNTDTRYYWWWKRWARBTTTVYDSMCNAKSMWRGNNWRAMKMWWAANNDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DTYTRNNTYCKSYAHSYWYWSNNAMWYRRYSARNWSSMARWTTRNNWWMSGBVRMRWAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NNNNNNSCCTCTRMMTMRWTMKGDGMTVRKKVKWRDTTCTYVDVWADSWVWWYANWMRCR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        THTDWCYKTWMNTWYWDMMTTMBTTTTRNMTTSTNMTNNNNNMWAACTNNNNNMWKAYY 705
WYAYMHMHKKGKAAWTNNKTABRDDHBAHVKTYWYWRYDY 124
                                                                                                                                                             ABHRSWNMWWVKCRNKYMVSWHYHAMRYBKWABAVGCNNNWKDRMAHHHWCATNNNMMWW 165
                                                                                                                                                                                                                                    TGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAA 120
                                                                                                                                                                                                                                                                                                                                                                                                  TCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGT 1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CKTTSWMWWMDHMNTHCTYGNNTWGSAYBMAAMSMWAAGASNBVTYNWCWRMTYMGKTMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGG 1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMDHWTYWMGNNTMWMRRAWKMMNMAWCRRAY CCNNNNNRACVWHKHKMWRWTWKYMWKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATCTACTCTCTCTGGTGTAACG---TTTGGCCTTCCTGTTTCTGAGGGAACTGCTCGGT 784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGGCAATCA 727
                                                                          ATGTATTTTGCATATATGGTGCTCATCTAAAGACAGAGGTT 1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACNINNIBKAMYMRVAWMYSRDTTNTDWMWTSDWBWHWYTVDYTMMRAWNINNINNWRB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AHATNNWGCWWNNTDARRTNNTTVMRRRWMTNTKTRWYSTTRRHHYTGATNNNNNNNNNN
                                                                                                                                                                                                                                                                                                                       225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  844
```

```
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR FILING DATE: 2000-10-20
PRIOR APPLICATION NUMBER: 60/237,768
PRIOR FILING DATE: 2000-10-03
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR FILING DATE: 2000-09-08
PRIOR FILING DATE: 2000-09-08
VUMBER OF SEQ ID NOS: 207012
SOFTWARE: FRASTSEQ for Windows Version 4.0
SEQ ID NO 2027
LENGTH: 4465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
FILE REFERENCE: CL001307
Score 37.6; DB 4; Length 4465; Pred. No. 0.52; 0; Mismatches 49; Indels 0
```

0

Gaps

```
APPLICANT: Jobert, S.
APPLICANT: Giordano, J.Y.
APPLICANT: Giordano, J.Y.
TITLE OF INVENTION: BSTs and Encoded Human Proteins.
FILE REFERENCE: GENSET.054PR2
CURRENT APPLICATION NUMBER: US/09/621,976
CURRENT FILING DATE: 2000-07-21
NUMBER OF SEQ ID NOS: 19335
SOFTWARE: Patent.pm
SEQ ID NO 2813
LENGTH: 832
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Jobert, S.
APPLICANT: Giordano, J.Y.
TITLE OF INVENTION: EST8 and Encoded Human Proteins.
FILE REFERENCE: GENSET 054PR2
CURRENT APPLICATION NUMBER: US/09/621,976
CURRENT FILING DATE: 2000-07-21
NUMBER OF SEQ ID NOS: 19335
SOFTWARE: Patent.pm
SEQ ID NO 2439
LENGTH: 581
                                                                                                                                                                                                                                                                           RESULT 10
US-09-621-976-2813
US-09-621-976-2813, Application US/09621976
; Patent No. 6639063
; GENERAL INFORMATION:
GENERAL INFORMATION:
Rdwards, J.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
US-09-621-976-2439/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-621-976-2439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2439, Application US/09621976
Patent No. 6639063
GENERAL INFORMATION:
APPLICANT: Dumas Milne Edwards, J.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 47.9 Matches 105; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                       APPLICANT: Dumas Milne Edwards, J.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY: CDS
LOCATION: 146..310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
                 ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1276 ACTTTTACCAAGCAGATGAGAGGTTTGTTTCTGCCATAGAAGGCATGCACCCAAAT 1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     335
                                                                                                                                                                                                                                                                                                                                                                                                                                                215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           656 AGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCCTTCTTGGTTCTG 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                596 ATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                998
                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCCAATTTGTTGCCTTGTTTCTCTGTTCTCTCTTTGT 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGT 814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGAGGCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAA 775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATAGGCTGAATCTCTTTTCCATTATAAATTCTCCCTTAGTAATCCTTTTGTGATTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGACCCAGAT 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCCACCCTTTTGTCTTTCACAG 1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATTGGAAATTGAGGGTTGGCTAATTGAAGTCAGATGTTCAGTGCAGAGTGTTGCAGCGT 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGTCTTCAGGTGCTCCTTTCCTATAGCAGATGGTTCCAGTTCACAGCCACATCAGGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGGAGTTCTGAATGTCAGCATCTGCAAGAATGGTGCACCCATCATTATGTCTTTCCCAC 1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 36.6; DB Pred. No. 0.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
δ
                                                                          밁
                                                                                                              Ś
                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; NAME/KEY: CDS
; LOCATION: 235..399
US-09-621-976-2813
                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-809-254A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Synthetic probe US-08-809-254A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: KESHI ET AL
APPLICANT: KESHI ET AL
TITLE OF INVENTION: PROBE FOR DIAGNOSING INFECTIOUS
FILE REFERENCE: 19036/33767
CURRENT APPLICATION NUMBER: US/08/809,254A
CURRENT FILING DATE: 1997-05-16
                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 4
LENGTH: 5829
TYPE: DNA
ORGANISM: Artificial sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Application US/08809254A Patent No. 6660852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 37; Conserv
                                                                                                                                                                                                                                                   Query Match 2.1%;
Best Local Similarity 49.2%;
                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: PCT/JP95/02036
PRIOR FILING DATE: 1995-10-02
PRIOR APPLICATION NUMBER: JP 236348
PRIOR FILING DATE: 1994-09-30
NUMBER OF SEQ ID NOS: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn version 3.1
                                                                                                                                                        3443 AACGCATACTATTAAGCTTTTTCAAGACCTAATAATATGCGCTGTTCTGATTTGAAAGAC
                                                                                                                642 AAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTTCGCTGTTGGAGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363 TCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTT 422
                                                                                                                                                                                                                                     92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86 YMWMWYWGWRRSYMAMWTRTWTGYAYYRSMMYWWRYRCWKKKAYYRKTTCYSSKGWTWWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26 WMYWKWYYMKTYWRWRRKKKKAWWKYWKTWTWWYWRYAMWGTYKKKAMCRTKTKKKKKKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MCWTRSMKYCYTKARWTGYYCYRKGGMWGKRGRWYASKKYMWKRWWWCWARMYRYSTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCCATTCAATGGGTAATAATGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RW-KKAWTTWWWKKTYYWAATRYWWMCWTKRWRASWWYCWWWGKARKWSTWRKSRSYAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCACC 482
                                                                          ATTCCATTATTATTTTACTGTAATCAAGCCATCTGGCTCTACTGTGAATTCTGGCTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RASMWWRRWYYTMMKWWKYAW 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGATCAGCATATCCATGCTTAT 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGC
TGTTTCTGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTAT 821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ARSAKRCCYSCSWGAMSWKYMWRWWRWRGWATGAGMKAWRASCMMRRKYAGKSKTSYKSM 264
                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.2%; Score 35.6; DB 11.5%; Pred. No. 0.76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           150;
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                     Score 35; DB
Pred. No. 4.6;
                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 134; Indels
                                                                                                                                                                                                                                                                        DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                     95;
                                                                                                                                                                                                                                                                        Length 5829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 832;
                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        542
                                                                             3562
                                                                                                                  761
                                                                                                                                                          3502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 145
                                                                                                                                                                                             701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
```

Ş

GCCATTT

```
US.09-949-016-17057
; Sequence 17057, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
                                                                                                                                          Ş
                                                                                                                                                                            문
                                                                                                                                                                                                  S
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
US-08-961-527-41/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-961-527-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: Diskette, 3.50 inch, 1.4Mb storage COMPUTER: HP Vectra 486/33 OPERATING SYSTEM: MSDOS version 6.2 SOFTWARE: ASCII Text CURRENT APPLICATION NUMBER: US/08/961.527 FILING DATE: CLASSIPTION OF THE COLORS OF THE CURRENT APPLICATION NUMBER: US/08/961.527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 41, Applicat
Patent No. 6420135
GENERAL INFORMATION:
APPLICANT: Charle
                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (301) 309-8512 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 9828 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Charles Kunsch
TITLE OF INVENTION: Streptococcus pneumoniae Polynucleotides and Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: don TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Brookes, A. Anders REGISTRATION NUMBER: 36, REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Rockville
STATE: Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                               3934
                                                                                                                                                                                                                                                                                                         4114 ÄACGCÄTACTATTAÄGCTTTTTCAAGÁCCTAATAATATGCGCTGTTCTGATTTGÄAAGAC
                                                                                                                                                                                                                                                                 762
                                                                                                                                                                                                                                                                                                                                       642 AAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCC 701
                                                                                                                                                                                                                                                                                                                                                                     92;
                                                                                                                                                                                                                                                                                                                                                                     h 2.1%;
Similarity 49.2%;
92; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1, Application US/08961527 6420135
                                                                                                                                                                                                                                          ATTCCATTATTATTTACTGTAATCAAGCCATCTGGCTCTACTGTGAATTCTGGCTTGTC
                                                                                                               GCCATTT 3928
                                                                                                                                             GCCATTT 828
                                                                                                                                                                            TGTTTCTGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCCTTAT 821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3E: Human Genome Sciences, Inc
9410 Key West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (301) 309-8504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36,373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41:
                                                                                                                                                                                                                                                                                                                                                                   Score 35; DB Pred. No. 6.6; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PB340P1
                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
                                                                                                                                                                                                                                                                                                                                                                     95;
                                                                                                                                                                                                                                                                                                                                                                                                 Length 9828;
                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                         4055
                                                                                                                                                                                                                                          3995
                                                                                                                                                                                                                                                                                                                                                                     0
```

```
; OTHER INFORMATION: Description of Artificial Sequence: synthetic; OTHER INFORMATION: nucleic acid sequence US-09-710-279-2485
S
                                           g
                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
US-09-710-279-2485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Human
US-09-949-016-17057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES AS;
TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF
FILE REFERENCE: CL001307
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR REPLICATION NUMBER: 60/237,768
PRIOR RILING DATE: 2000-10-20
PRIOR RILING DATE: 2000-10-30
PRIOR RILING DATE: 2000-10-30
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR RILING DATE: 2000-09-08
PRIOR FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                            APPLICANT: KIMMERLY, WILLIAM JOHN
TITLE OF INVENTION: STARHYLOCOCCUS EPIDERMIDIS NUCLEIC ACIDS AND PROTEINS
FILE REPERENCE: PUJ480US
CURRENT APPLICATION NUMBER: US/09/710,279
CURRENT FILING DATE: 2000-11-09
PRIOR APPLICATION NUMBER: 60/164,258
PRIOR APPLICATION NUMBER: 60/164,258
PRIOR FILING DATE: 1999-11-09
NUMBER OF SEQ ID NOS: 4472
SOFTWARE: PATENTIN Ver. 2.1
SEQ ID NO 2485
LENGTH: 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 207012
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 17057
                                                                                                                              Query Match
Best Local Similarity
Matches 84; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2485, Application US/09710279
Patent No. 6703492
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.1%;
Best Local Similarity 51.8%;
                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH: 154023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147686 AACAAAAGTTGTATTATAA 147704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           147507 ACAGTATTCAACAGATATATATCAACATCTGCTGTGT-GCCAAGCAGTGTTATTATCA 147565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  968 TTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAAT 1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      908
    CATTTTTCTGGGGGTGCTGCAAAGAAAGATAAGCGCGTATACCACTGTGATGAAGAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGCAATAGAAGACTATGA 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGCATATCCATGTTATTTTTTGTCTGAAATGATTAGATTTCAAAAAGTTGCCCTTTCCA 147685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCA 1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTCATTATAAACTGTAAGAGAATAAGAAAATGGAATATGATACATCACAAGTGTTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.1%;
ilarity 50.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٥.
                                                                                                                              Score 34.8; DB
Pred. No. 0.95;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 35; DB
Pred. No. 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.
                                                                                                                                   82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95;
                                                                                                                                                                     4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 154023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASSOCIATED
OF DETECTION AND USES THEREOF
                                                                                                                                                                         Length 462;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲.
                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                 Gaps
                                               207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      967
      984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147625
```

```
Sequence 1521, Application US/09134001C

Patent No. 6380370

GENERAL INFORMATION:
APPLICANT: Lynn Doucette-Stamm et al
APPLICANT: Lynn Doucette-Stamm et al
APPLICANT: Lynn Doucette-Stamm et al
ITILE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
ITILE OF INVENTION: UNUCLEIC ACID AND THERAPEUTICS
FILE REFERENCE: GTC-007

CURRENT APPLICATION NUMBER: US/09/134,001C

CURRENT FILING DATE: 1998-08-13

PRIOR APPLICATION NUMBER: US 60/064,964

PRIOR FILING DATE: 1997-11-08

PRIOR FILING DATE: 1997-08-14

NUMBER OF SEQ ID NOS: 5674

SEQ ID NO 1521

LENGTH: 477

TYPE: DNA
ORGANISM: Staphylococcus epidermidis

US-09-134-001C-1521
                                                                         밁
                                                                                              ঠ
                                                                                                                                 밁
                                                                                                                                                                         र्
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                             ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
Search completed: November 9, 2005, 01:39:27 Job time : 313 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
US-09-134-001C-1521
                                                                                                                                                                                                                                                                                      Best Local Similarity 50.6 Matches 84; Conservative
                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     985
                                                                     283
                                                                                                         985
                                                                                                                                         223 TCTCAATTAGACTCAAGAGTAAGACTAAATGATTATATAGAAACAGAAATTATTAACACT
                                                                                                                                                                                                                 865 CATTTTTCTGGGGGTGCTGCAAAGAAAAGATAAGCGCGTATACCACTGTGATGAAGAGGAA 924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208
                                                                                                                                                                               AGCGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTG 1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGATTAAAGAATCGTATATACTAATAAAGACGACACCAGGATTTG 328
                                                                                                     AGCGTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTG 1030
                                                                                                                                                                                                                                                                                                       2.1%; Score 34.8; DB 3; Length 477; 50.6%; Pred. No. 0.97;
                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                        82;
                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                      0
                                                                                                                                             282
                                                                                                                                                                                                                 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       267
                                                                                                                                                                                                                                                                                      0,
```

THIS PAGE BLANK WEPTON

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic - nucleic search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       November 9, 2005, 01:05:48; Search time 1389 Seconds (without alignments) 9770.175 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                             10:
112:
113:
114:
115:
116:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9794790 segs, 4134909567 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 atgggagcgaattcgaaatc...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-651-651-4
1641
/ cgn2_6/ptodata/2/pubpna/US09A_FUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US09B_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US09E_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US09C_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US09_NEW_PUB_seq:*
/ cgn2_6/ptodata/2/pubpna/US09_NEW_PUB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10A_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10B_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10D_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10D_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10F_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10F_PUBCOMB_seq:*
/ cgn2_6/ptodata/2/pubpna/US10T_PUBCOMB_seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
/cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6/ptodata/2/pubpna/PCTUS PUBCOMB.seq:*
6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ....ttgataaaagtgggtattaa 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19589580
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

54321	Result
591.8 252.6 215.8 193 187.8	Score
36.1 1719 15.4 1760 13.2 528 11.8 924 11.4 848	Query Match Length DB ID
20 19 19 21	8
US-10-437-963-76086 US-10-424-599-16008 US-10-424-599-134518 US-10-425-115-137717 US-10-425-115-93907	DB ID
Sequence 76086, A Sequence 16008, A Sequence 134518, Sequence 137717, Sequence 93907, A	Description

00				0000	0
, w 4 L	000	00000	3220987	115 116 117 118 119 119 120 221 221 221 23	φνωφούτα <i>ω</i> , π
			,	7.7.7.7.7.7.7.7.3	20.8 20.8 72.2 56.6 51
17703 43680	568 576 2356	654 654 654 266145	1939 296 3325 328 735 2395 2433	1545 1545 394 394 473 1292 1292 1292 1292 12600 12600	2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
18 18	9 5 13	13	1802221	119 124 124 126 126 126	19 22 21 21 21
0-242-515-38 0-242-515-38 0-257-166-34 0-257-378-3	US-09-925-065A-114201 US-09-925-065A-665799 US-09-822-830A-324 US-09-764-877-3884	-09-925-065A-71898 -09-925-065A-71898 -09-925-065A-71898 -09-925-065A-71898	-10-425-115- -10-437-963- -10-437-963- -10-275-323A -10-437-963- -10-437-963- -10-437-963- -10-321-802-	US-10-74-599-56537 US-10-424-599-56537 US-10-085-783A-23539 US-10-085-783A-23539 US-10-060-036-128 US-10-921-236-198 US-10-921-235-35 US-10-921-235-35 US-10-240-965-140 US-11-097-143-24163 US-11-097-143-24163 US-11-097-143-38293	-10-424-599-173 -10-424-599-173 -10-424-599-575 -10-483-760-45 -10-425-115-571 -10-425-115-617 -10-425-115-939
ce 3884	Sequence 114201, Sequence 665799, Sequence 324, App Sequence 3884, Ap	equence 718 equence 718 equence 718 equence 718	e 31256 e 18841 e 65323 e 65323 e 78, e 78, e 38267 e 38278 e 38278	sequence 5637, Apsequence 23539, A Sequence 23539, A Sequence 236, App Sequence 198, App Sequence 107, App Sequence 140, App Sequence 24160, A Sequence 24160, A Sequence 24169, A Sequence 24163, A Sequence 38293, A	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

ALIGNMENTS

US-10-437-963-76086

GENERAL INFORMATION:

Sequence 76086, Application US/10437963 Publication No. US20040123343A1

```
APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Chou, Yihua
APPLICANT: Cao, Yongwei
APPLICANT: Cao, Yongwei
APPLICANT: Barbazuk, Brad
APPLICANT: Barbazuk, Brad
APPLICANT: Barbazuk, Brad
APPLICANT: Bring
TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(51221)B
CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT TAPPLICATION NUMBER: US/10/437,963
CURRENT TAPPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 76086
LENGTH: 1719
TYPE: DNA
ORGANUES:
OTHER INFORMATION: Clone ID: PAT_MRT4530_76111C.1
US-10-437-963-76086
Query Match
36.1%; Score 591.8; DB 20; Length 1719;
```

```
á
                                                                                                              8
                                                                                                                                                                  밁
                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                               중 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유 성 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 65.2%; Matches 1029; Conservative
                               1107
                                                                                                                                                                                                                                                                                                              948
                                                                                                                                                                                                                                                                                                                                                               793
                                                                                                                                                                                                                                                                                                                                                                                                           888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    768
CCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTTATCATGATGACCCTGTTTT
                                                                                                         GTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGA
                                                                                                                                                                       CATTATGGATACAACTGAGAACATAACATCCAGCATGGAGTGTGGAAAGCCCAACTCTTTT
                                                                                                                                                                                                                        CAACATG-----
                                                                                                                                                                                                                                                                  GCCCACAAACCTTGTCAGCATCGAGGTTCCTACAGTTCGAGATACGGAAAGCATACCCATC
                                                                                                                                                                                                                                                                                                              СССБАСАЛАТАТТАТТААСАТТБАЛАТТССТТССАСТАСССТТАСАБАЛАСАССТСТАСТ
                                                                                                                                                                                                                                                                                                                                                                                               CTCAGAATATTGCAAAGCTGATAATATATACTGGAAGCATTTCTTTGAGGGAAAGGGA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGAGGGAACAGCACGATTGATGTTTAATGCATTTGGTTCATCTTTATGGCTCATGCCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTTCTACTGAAGCAGTTAAAGCTGCTCTTTCTGGAGCAACATTTGGTCTTCCAGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGTTCTGTTGAGGCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCCTTCCTGTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTACATCCGATGGCTTGACGAACATATACATGCATACTTTGCAGTTGGTGCACCTCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACTTTTGAAACTGCATTGAAACTTCGAGGAGGGCCTTCTTTAGTGTTTTGCTCATTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCCCCATTCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTTAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCTTACAACCAGACGGATCATCCAGAGTGCAAGTCAAGGCCTGACAGTGGTCTTTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTAGACACCACTAAGCTTCTTTCTGCTGTTCAACTGCTGGTTTAAGTGTATGGTGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  erigercearcerreacteric entre entr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACTACCGGAAGCTCTCGGGGATAATAATCCCCCGGGTTCGCGTCGACGCAGCTGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.9e-173;
0; Mismatches 382;
                                                                                                                                                                                                                 -----ACCAGCATGGAATGTGGCCTTCCCACCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168;
                                                                                                                      1106
                                                                                                                                                                                                                     1046
                                                                                                                                                                       971
                                                                                                                                                                                                                                                                  911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467
                                                                                                                                                                                                                                                                                                                                                               851
                                                                                                                                                                                                                                                                                                                                                                                                           947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182
                                    Ś
       밁
                                                                                               밁
                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                        ; FEATURE:
; OTHER INFORMATIONS-10-424-599-16008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 2
US-10-424-599-16008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Zhou Yihua
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(5323)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 16008
LENGTH: 1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 16008, Application US/10424599
Publication No. US20040031072A1
GENERAL INFORMATION:
APPLICANT: La ROSa Thomas J
APPLICANT: Kovalic David K
                                                                                                                                                                                          Best Local Similarity Matches 309; Conserv
                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                               ORGANISM: Glycine max
FEATURE:
OTHER INFORMATION: Clone ID: PAT_MRT3847_114461C.1
                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1032
                                       TTGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGGTCTGGAAC 1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTCTGGGAGCTTGATAAA 1629
       CTGGATCATTACGGATGTCGTTTATGAGTTTGAAGGATCTCTAATCTCAAGGTCAGGGAA
                                                                                                                                              TCATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAA 1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAGATGAATGTCGACCACCATGTAGGCCAGGGCATACTCCCAAACATGACGAGGACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCAAAAGTGAACATAACTAGGGCTCCGCAGGCAGAACATGATGGATCTGATTTACAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCCTCGTGTCAAGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAATCCCCTCACACCCTGGGAGAGACCCCCAATAAAGAATGTGTTCTGCATATATGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGC 1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCTCAGAGCATAGGGCTTATCCATCAGCTTGAGAAGTACTACCAGGGTGATCCAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACATGTGAAGTACATAACCTACTTTGAAGATGCTGAGAGCATTCCGGGATGGAGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTAAAGTTAACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGT 1490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCCÁGCGGAGACGGTATCCTACAATTCTCTCTCATGGTGCAAGAACTGGCTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATAACTGGGGATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGATAATAACTGATATTATTTATGAATTTGAAGGGTCTCTACTATCAAGGCAGAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGATTCAAAGACTGAGGTAGGCTATTATTTTGCACCGAGTGGAAAACCATATCCAGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATAGTAACACAATTTATTCTTTCCAGATCAGGTAATTCTGTTACTGGAAAGCCCCAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----TCTGGAACTGTGGTTGATGGGAACGCTGGACC
                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                 15.4%;
                                                                                                                                                                                        Score 252.6; DB 1
Pred. No. 2.9e-67;
0; Mismatches 94
                                                                                                                                                                                                                                         DB 19;
                                                                                                                                                                                                                                         Length 1760
```

1571

1511

1370

1211

0,

Gaps

```
Ş
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
US-10-424-599-134518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઇ
                          á
                                                                      밁
                                                                                                       á
                                                                                                                                           밁
                                                                                                                                                                                                                                                   ફ
                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; FEATURE:
; OTHER INFORMATION: Clone ID: PAT_MRT3847_9247C.1
US-10-424-599-134518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
APPLICANT: Kovalic David K
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(5323)B
FULE REPERENCE: 38-21(5323)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 134518
LENGTH: 528
                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 134518, Application US/10424599 Publication No. US20040031072A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1467 ACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACAT 1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
502
                                407
                                                                    442
                                                                                                       348
                                                                                                                                           382
                                                                                                                                                                                288
                                                                                                                                                                                                                  322
                                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                                         262 ATGGTCCATTCTCGACTGTCCTTACTCTCCGCTCGATTTCAACCCTCTCGACTTGGTCTG
                                                                                                                                                                                                                                                                                                              168 GTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATG
                                                                                                                                                                                                                                                                                                                                                                                                    108 CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      256
                                                                                                                                                                                                                                                                                                                                                                  202 CGACTACTCGAAGCTCTCCGGCATTATAATCCCCGGCTTCGCGTCCACTCAGCTCCGAGC
                                                                                                                                                                                                                                       GCTAGACACCACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGTCTTCCTGGAAAGAGGACAGCAGTTTGGGAAGCTTGATAAA 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCATGATGGCTCAGATGTACAAATTAAATTGAATGTGGAACATCACCATGAAGAAGATAT
                                                                                           CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTC-TACTGTCTGGAAAGAGT
                                                                                                                                                                        TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC
                                                                                                                                                                                                                  GCTCGACACCAAACTTCTTTCTGCTGTCAATTGCTGGCTTAAGTGCATGGTGTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACT
GGATTAAGTGGTGTATTGAATTTGGCA
                                  GGCTTAAGTGGTGTGTTGAGTTTGGTA 433
                                                                                                                                           TCCTTACAACCAGACAGATCATCCTGATTGCAAGTCCCGTCCGGATAGTGGTCTTTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGTTCCAAACATGACAAGATCACCAAGGGTGAAGTATATAACATATTATGAAGATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGA 1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCCTGGTGCAAAAACTGGCTTGGACCGAAAGTGAACATAACAAAAGCTCCACAGTCAGA 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTGGTTGAAGGGAACCCTGGAGCAATAAGTGGCGATGAGACGGTGCCATATCTCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                        13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 215.8; DB 1
Pred. No. 4.4e-56;
0; Mismatches 62
528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                         62;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 528;
                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Associated With
                                                                                                                                           441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1406
                                                                                                       406
                                                                                                                                                                              347
                                                                                                                                                                                                                    381
                                                                                                                                                                                                                                                                                         321
                                                                                                                                                                                                                                                                                                                             227
                                                                                                                                                                                                                                                                                                                                                                  261
                                                                                                                                                                                                                                                                                                                                                                                                    167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           255
```

```
US-10-425-115-93907
US-10-425-115-93907; Application US/10425115
; Publication No. US20040214272A1
; Publication No. US20040214272A1
; APPLICANT: LA ROSA, Thomas J.
; APPLICANT: Kovalic, David K.
APPLICANT: Cao, Yihua
APPLICANT: Cao, Yongwei
; TITLE OF INVENTION: Nucleic Acid Molecules and TITLE OF INVENTION: Plants
; FILE REFERENCE: 38-21 (53222) B
; CURRENT APPLICATION NUMBER: US/10/425,115
; CURRENT FILING DATE: 2003-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
US-10-425-115-137717
                                     US-10-425-115-93907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-425-115-137717
                                                                                                                                NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 93907
LENGTH: 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants FILE REFERENCE: 38-21(5322)B FILE REFERENCE: 38-21(5322)B CURRENT APPLICATION NUMBER: US/10/425,115 CURRENT FILING DATE: 2003-04-28 NUMBER OF SEQ ID NOS: 369326 SEQ ID NO 137717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 137717, Application US/10425115
Publication No. US20040214272A1
GENERAL INFORMATION:
APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Zhou, Yihua APPLICANT: Cao, Yongwei
                                                                          ORGANISM: Zea mays FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: Clone ID: MRT4577_57075C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
ORGANISM: Zea mays
                                                     OTHER INFORMATION: Clone ID: MRT4577_185630C.1
                                                                                                                    TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity hes 229; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      299 AAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          239 CTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGATAGACCATCCCGAATGCAAGTCAAGGCCTGATAGTGGTCTTTCTGCAATTACAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kovalic, Dav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGTAGAGTTTGGCATTGAAGCTAATGCAATTATCGCTGTTCCGTATGATTGGAGACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCCATCAATGCTTGAGGAGAGAGATCTGTACTTTCACAAATTAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGACCCTGGTTATATAACAGGTCCTCTCTCTTCAGTATGGAAAGAATGGGTCAAATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11.8%;
79.2%;
11.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 193; DB Pred. No. 8.6e. 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
Score 187.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.6e-49;
                                                                                                                                                                                                                                                                             and Other Molecules Associated With
  BG
  21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 924;
Length 848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          649
```

```
RESULT 6
US-10-425-115-93909
US-10-425-115-93909
Sequence 93909, Application US/10425115
Publication No. US20040214272A1
GENERAL INFORMATION:
APPLICANT: Kovalic, David K.
APPLICANT: Cao, Yongwei
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53222)B
FILE REFERENCE: 38-21(53232)B
CURRENT APPLICATION UNMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
                               ક
                                                                   밁
                                                                                              á
                                                                                                                                       밁
                                                                                                                                                                S
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                     ; OTHER INFORMATION: Clone ID: MRT4577_185632C.1 US-10-425-115-93909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 93909
LENGTH: 1383
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                 Matches 228;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                     876
                                                                                                                                        816
936
                                  471
                                                                                                      411
                                                                                                                                                                           358
                                                                                                                                                                                                            756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                    GAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGGTT 527
                                                                                         TAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTG 470
                                                                                                                                                                                                                                                                                                    ACTAAGCTTCTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAAT 297
GAGACTGCCCCCATCAATGCTTGAGGAGAGAGATCTGTACTTTCACAAATTAAAGTT 992
                                                                 CANATGGTGTAGAGTTTGGCATTGAAGCTAATGCAATTATCGCTGTTCCGTATGATTG
                                                                                                                                       TTGGATCCAGGTTACATAA-----CAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCT 410
                                                                                                                                                                                                          CAGACAGACCATCCCGAATGCAAATCAAGGCCTGATAGTGGTCTTTCTGCAATTACAGAG
                                                                                                                                                                                                                                           CAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAA 357
                                                                                                                                                                                                                                                                              AATGCTTGAGGAGAGAGATCTGTACTTTCACAAATTAAACAGGATCAGTAAGAGT 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACT 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCACCAAC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTTATATAACAGGTCCTCTCTCTTCAGTATGGAAAGAATGGGTCAAATGGTGTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTGTTGA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTGGATCC 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTCTCTGCGGTAAATTGCTGGCTTAAATGCATGCTGCTTGAACCCCTATAATCAGATAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTTTCTGCTGTCAACTGCTGGTTTAAGTGTTATGGTGCTAGATCCTTTATAATCAAACAGA
                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                  10.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 3.5e-47; 0; Mismatches 67;
                                                                                                                                                                                                                                                                                                                                                            Score 173.8; DB 21;
Pred. No. 1.1e-42;
                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                       875
                                                                                                                                                                                                          815
                                                                                                                                                                                                                                                                            755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             305
                                                                   935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                626
```

RESULT 7

```
APPLICANT: LA ROBE THOMAS J
APPLICANT: LA ROBE THOMAS J
APPLICANT: CARONALIC DAVICK
APPLICANT: Zhou Yihua
APPLICANT: Caro Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(5323) B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 57573
LENGTH: 380
TYPE: DNA
ORGANISM: Glycine max
FEATURE:
CURRENT FILING DATE: 2003-04-28
FEATURE:
COMPART HUNDRAMATION: Clone ID. DAT MRT3847 22C.1
                                                                                                                                                                                                                                                                                                                                                                                 US-10-424-599-57573; Sequence 57573, Application US/10424599; Publication No. US20040031072A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-424-599-17331
US-10-424-599-57573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-424-599-17331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Boy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21 (53223)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 17331
LENGTH: 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 17331, Application US/10424599
Publication No. US20040031072A1
GENERAL INFORMATION:
APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: unsure
LOCATION: (1)..(143
OTHER INFORMATION:
                    OTHER INFORMATION: Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Glycine
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1002 TCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCACCCTTTTGTCTTTCACAGCCCG 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            963 TAACATTGAAATTCCTTCCACTAGCG------TACAGAAACAGC 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAG 112:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGTTACACCAGTTAAAGAAGTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAACATTGAAATTCCCTCAACTCGTGCATTTGATGCATATCCTTCATTCTCAGAAATACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATCACTGTGATGAGCAGGAGTTTAAGACAAACTTATCTGGGTGGCCAACAAAAATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCTTGTACCTGTTAGAGAAGTT 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGAGGCCAACTTGTCCAGCATGGAGTGCGGACTACCTACTCAATTATCTTTCTCAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1433)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unsure at all n locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.4%;
70.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ä
                 ID: PAT_MRT3847_22C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAT_MRT3847_115655C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 120.8; DB 1
Pred. No. 4.5e-26;
0; Mismatches 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
```

```
APPLICANT: Yadav, Narendra
APPLICANT: Zhang, Hongxiang
TITLE OF INVENTION: ACTLITRANSFERASES FOR ALT
TITLE OF INVENTION: AND OLL CONTENT IN OLER
FILE REFERENCE: CL2302 US NA
CURRENT APPLICATION NUMBER: US/10/883,760
CURRENT FILING DATE: 2004-07-06
NUMBER OF SEQ ID NOS: 86
SOFTWARE: Patentin version 3.2
SEQ ID NO 45
LENGTH: 2326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-83-760-45
US-10-803-760-45
; Sequence 45, Application US/10883760
; Publication No. US20050035174A1
; GENERAL INFORMATION:
                                                                                  밁
                                                                                                                                  Ś
                                                                                                                                                                                밁
                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
밁
                               á
                                                                                                                                                                                                                                                                                                                                                                   6
                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-883-760-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 176; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 4.4
Best Local Similarity 61.2
Matches 167; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (2271)..(2271)
OTHER INFORMATION: n is a, c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Yarrowia lipolytica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                            1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1294 ATCACGGATATCAT-TTACGAAACTGAAGGTTCCCTCGTGTCAAGGTCTGGAACTGTGGT 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1234 AAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAATTTGGATC 1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                109 AAAGAATAGGACGGTAACTACTATGCTCCTAGCCGTGAGCCCTACCCTGAACACTGGATC 168
GATATGGAGGAGGAGGTCCCAACTGGGTCAATGACCATATTGAATCCTTTGTCGACATTT 1315
                                                                                      CGGGCCATTCCATGGGCTCCCAGGTCATCTTCTACTTCATGAAGTGGGCTGAGGCCGAGG 1255
                                                                                                                                                                             CCAAGCTCAAAGCTTCAATCGAAGAGACTAAGCGTATGACAGGTGAGAAGACAGTTCTGA 1195
                                                                                                                                                                                                                           ACAAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTAT 574
                                                                                                                                                                                                                                                                                                 CTGTTCCATACGATTGGAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTC 514
                                                                                                                                                                                                                                                                                                                                                                   TGTGGAACAAGCTGCTCGAGAACCTGGCTGTTATTGGATACGATACGATACAATGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                              TCTGGAAAGAGTGGCTTAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGAAGCGACGTACATGTGGAACTAAATGTTG 1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCAGAAACAGGCTTGGTCCGGATGTGCACATATACACAAGCCCCACCGTGTGAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGCAAGAATTGGCTCGGACCTAAAGTTAACATA-ACAATGGCTCCCCAGCCAGAACACG 1471
                                      TTGCACCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTG
                                                                                                                      TTGCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAA 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACTCTCTTG 1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGGGTCAGATGTTCACCTTAAATTGGATGTGG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGGGAACCCTGTATCCATAGC-CGGCATGAGACGGCGCCCATACTTATCCCTTTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.1%; Score 68; DB 22; Length 2326;
49.4%; Pred. No. 2.1e-09;
ative 0; Mismatches 180; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.4%; Score 72.2; DB 19;
61.2%; Pred. No. 3.2e-11;
ative 0; Mismatches 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FOR ALTERATION OF POLYUNSATURATED FATTY ACIDS IN OLEAGINOUS YEASTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; OTHER INFORMATION: Clone ID: MRT4577_152078C.1 US-10-425-115-57116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: La ROSA, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules an
TITLE OF INVENTION: Plants
FILE REPERENCE: 38-21 (5322)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-425-115-57116
                                                                           ; OTHER INFORMATION: Clone ID: MRT4577_15634C.1 US-10-425-115-61794
                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-425-115-61794
                                                                                                                                                                  TITLE OF INVENTION: Nucleic Acid Molecules
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(5322)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 61794
LENGTH: 962
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 61794, Application US/10425115 Publication No. US20040214272A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 57116
LENGTH: 369
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 57116, Application US/10425115 publication No. US20040214272A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                       APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: unsure
LOCATION: (1)..(369)
OTHER INFORMATION: unsure at all n locations
FEATURE:
                                                                                                                                 TYPE: DNA
ORGANISM: Zea mays
                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Zea mays
Local Similarity hes 60; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 78.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           298 CAAACAGACCATCCCGAGTGTAAGTCA 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238 ACTAAGCTTCTTTCTGCTGAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAAT 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGATAGACCATCCCGAATGCAAGTCA 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
 Conservative
                 3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 56.6; DB 21;
Pred. No. 2.4e-06;
                   Score 51; DB 21;
Pred. No. 0.00025;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                     DB 21; Length 962;
                                                                                                                                                                                                                                                                                                          and Other Molecules Associated With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and Other Molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 369;
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
 0
```

```
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(53222)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 93908
LENGTH: 374
TYPE: DNA
ORGANISM: Zea mays
FEATURE: TITLE TOOLS TOOLS TOOLS TO TOOLS TOOLS TO T
                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Kazemi-Esfarjani, Parsa
APPLICANT: Benzer, Seymour
TITLE OF INVENTION: AN ANMAL MODEL OF POLYG
TITLE OF INVENTION: TOXICITY, METHODS OF US
TITLE OF INVENTION: TOXICITY
FILE REFERENCE: 06618-666001
CURRENT PILLING DATE: 2003-06-18
PRIOR APPLICATION NUMBER: US/10/465,217
PRIOR FILING DATE: 2000-08-14
PRIOR APPLICATION NUMBER: US 60/148,934
PRIOR APPLICATION NUMBER: US 60/148,934
PRIOR APPLICATION NUMBER: US 60/148,933
PRIOR FILLING DATE: 1999-08-12
PRIOR APPLICATION NUMBER: US 60/148,933
PRIOR FILLING DATE: 1999-08-12
PRIOR APPLICATION NUMBER: US 60/177,047
PRIOR FILLING DATE: 2000-01-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
; OTHER INFORMATION: US-10-465-217-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-465-217-13/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-425-115-93908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 13, Applica Publication No. US20 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 50; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 93908, Application US/10425115 Publication No. US20040214272A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                           SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Clone ID: MRT4577_185631C.1 -10-425-115-93908
                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 69
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: La Rosa, Thomas J. APPLICANT: Kovalic, David K.
                                                                   TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                            LENGTH: 486
                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 60/205,720 FILING DATE: 2000-05-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    321 GTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAAGGCCTGATAGTGGTCTTTCTGCAATTACAGAGCTGGACCCTGGTTATATAACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAGAACCGCAGTC 1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGAAGTACATAACCTACTATGAGGATGCTGAAAGTCTTCCAGGATGGAGAACAGCAGTC 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGGAGCTCGATAAA 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/10465217 vo. US20030204859A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 44; DB 2
Pred. No. 0.021
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۰,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POLYGLUTAMINE OF POLYGLUTAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 21; Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and Other Molecules Associated With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
RESULT 15
US-10-424-599-56537
US-10-424-599-56537, Application US/10424599
; Sequence 56537, Application US/10424599
; Publication No. US20040031072A1
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
US-10-719-993-6824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-719-993-6824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: CL001496
CURRENT APPLICATION NUMBER: US/10/719,993
CURRENT FILING DATE: 2003-11-24
NUMBER OF SEQ ID NOS: 55342
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 6824
LENGTH: 325446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 6824, Application US/10719993
Publication No. US20040265849A1
GENERAL INFORMATION:
APPLICANT: CARGILL, Michele et al.
TITLE OF INVENTION: GENETIC POLYMORPH
TITLE OF INVENTION: ALZHEIMER'S DISE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 2.4%;
Best Local Similarity 46.7%;
Matches 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.4%;
Best Local Similarity 56.2%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Homo sapiens
PEATURE:
NAME/KEY: misc feature
LOCATION: (1) ... (325446)
OTHER INFORMATION: n = A,T,C or G, or insertion/deletion polymorphism (see Tables 1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
                                                                                                                           142542
                                                                                                                                                                                                     142482
                                                                                                                                                                                                                                                                               142422
                                                                                                                                                                                                                                                                                                                                                                                                                                   142302 CTACTGTTAACTTTGCAATCTTTATGAATCATTGTTTTTGTCACTGTACCTCATTTGCT 142361
                                                                                                                                                                                                                                                                                                                   640
                                                                                                                                                                                                                                                                                                                                                                                             580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         520
                                                                                                                                                               760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63
                                                                                                                                                                                                                                                                                                                 CCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCT 699
                                                                                                                           GGTGAATCTTTGCACATTACT 142562
                                                                                                                                                                                                     TCTCAAGGGGGCTCTTTTGTACTGAAGTGTTTTTATTTACTTTAATGTAAGCATGTGCCAT 142541
                                                                                                                                                                                                                                                                               ATGAAAAATGTTCTATAAAGTGTAGAGCTCTCTTTCCATATGTGGTACATTTTTAGGTCC 142481
                                                                                                                                                                                                                                                                                                                                                                                             CATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCA 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTGCC 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGGGTTGAC 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTTGTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGG
                                                                                                                                                             CCTGTTTCTGAGGGAACTGCT
                                                                                                                                                                                                                                       CCTCTTCTTGGTTCTGAGGCAATCAAATCTACTCTCTGGTGTAACGTTTGGCCTT
                                                                                                                                                                                                                                                                                                                                                         CATCTATAGATTGCAAATGATCACTCAATCTAATTCAACTGCTAGACTAGTAAGATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCCTTCCTGTTTCTGAGGGAACTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Michele et al.
GENETIC POLYMORPHISMS ASSOCIATED WITH
ALZHEIMER'S DISEASE, METHODS OF DETECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 38.8; DI
Pred. No. 1.1;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 38.6; DE Pred. No. 74; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                         142421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
```

GENERAL INFORMATION:
APPLICANT: La ROSA Thomas
APPLICANT: Kovalic David

```
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53223)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 56537
LENGTH: 1545
TYPE: DNA
ORGANISM: Glycine max
FEATURE:
OTHER INFORMATION: Clone ID: PAT_MRT3847_22062C.1
US-10-424-599-56537
                                                                                                                                                                                        D
Search completed: November 9, 2005, 04:41:24 Job time: 1395 secs
                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                         밁
                                                                                                    밁
                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.3%; Score 38; DB 19; Length 1545; Best Local Similarity 53.3%; Pred. No. 3.9; Matches 80; Conservative 0; Mismatches 70; Indels
                                                                                                    1076 TTGGCCGTCTCATGCATCTCTTATGTACT 1105
                                                                                                                                                                                                1016 AATCCAGGGGTTGCTCTAATATTTCATCTTTGGTGTCTTTGTCATCATCGTTTTGGGTTCT 1075
                                                                                                                                685 TTCGCTGTTGGAGCTCCTCTTCTTGGTTCT 714
                                                                                                                                                                                                                                  625 AGGCTAGAAATTGCACCAAAACATTATTTGAAGTGGCTTGATCAGGATATCCATGCTTAT 684
                                                                                                                                                                                                                                                                                                 956 TCTATTTTTTGGTGCAACAGTTGGTTTTAGTATATCTTAATAACTTGGGACAAATAGCTG 1015
                                                                                                                                                                                                                                                                                                                                      565 TCTATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTG 624
                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

THIS PAGE BLANK (USPTO)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run
                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            on:
 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
 386.2
374.8
367
367
355.4
355.4
356.6
31.8
31.8
31.8
31.8
31.6
291.8
291.8
291.8
291.8
291.8
291.8
291.8
                                                                                                                                                        484
464.2
438.8
438.7
                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                          seq
                                                                                                                                                                                                                                                                                                                                                                                                          length: 0
length: 2000000000
                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                   987554321
                                                                                                                                                                                                                                                                                                                                                                                                                                                 34239544 seqs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           November 9,
1 atgggagcgaattcgaaatc.....ttgataaaagtgggtattaa 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-651-651-4
                                                                                                                                                                                                                                                                                                                                                                         Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                                gb_est4:*
gb_est5:*
gb_est6:*
gb_gss1:*
gb_gss2:*
                                                                                                                                                                                                                                                                                                                         gb_est1:*
gb_est2:*
gb_htc:*
gb_est3:*
                                                                                                                                                                                                        Length
1719
9466
9466
7752
7783
7886
9686
6942
6694
6728
6647
1704
4888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version (c) 1993 - 2005
                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2005, 03:31:21; Search time 5636 Seconds (without alignments) 11082.943 Million cell updates/sec
                                                                                                                CK260764
BQ508623
BG600021
CV478732
         AU306500
CA221313
CA156623
CV458559
CK115712
AU290926
BI422757
BI267156
                                                                                                BQ584361
CD710878
                                                                                                                                                CF844688
CK939714
CK259393
                                                                                                                                                                         CL949010
AU237072
CK259394
                                                                                                                                                                                                        ID
 CV189962
                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.1.6
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                   68479088
CA156623
CV458559
CK115712
AU290926
BI422757
BI267156
CV189962
                                                                       BQ584361
CD710878
CA090564
AI974291
BI267124
                                                                                                                       CK259393
CK260764
BQ508623
BG600021
                                                                                                                                                        CF844688
CK939714
                                                                AU306500
                                                                                                                 CV478732
                                                                                                                                                                               CL949010 OSIFSB002
AU237072 AU237072
                                                                                                                                                                                                        Description
                                                                                                                                                                         CK259394
                                                                                                                              B psHB029xF

1 CGF100474

3 EST705471

1 EST706842

1 EST616038
                               1 SCSGAM210
1 T110293e
1 NF097C07I
2 AU306500
3 SCSGFL403
3 SCEPRZ308
2 Pam01-25m
2 Y014D01 P
                                                                                               E011859-0
VVA026C02
                                                                                                                        EST504916
                         AU290926
```

				ი		Ω				ი	Ω	ი			a					
45	44	43	42	41	40	39	38	37	36	3 5	<u>د</u> 4	ω W	32	31	30	29	28	27	26	25
122.4	122.4	122.4	123.8	126.6	133.4	133.4	134.8	135.2	137	159	160	160.2	165.6	167.6	168.6	176.8	180.4	182.2	185	189.2
7.5	7.5	7.5	7.5	7.7	8.1	8.1	8.2	8.2	8.3	9.7	9.8	9.8	10.1	10.2	10.3	10.8	11.0	11.1	11.3	11.5
709	496	486	546	493	737	303	503	207	582	840	542	692	625	1225	869	666	518	559	632	792
Н	-	_	9	9	۲	æ	4	œ	٢	7	N	7	æ	œ	7	œ	N	N	4.	4
AI486635	AI488511	AI771341	CC948085	CC948076	AJ611569	BH548609	BI595853	BH746163	AU287072	CK260765	AW120335	CO521704	BH944186	B11175	CO532456	BH974706	BE321377	AW760400	BI922233	BG367066
AI486635	AI488511	AI771341	CC948085	CC948076	AJ611569	BH548609	BI595853	BH746163	AU287072	CK260765	AW120335	CO521704	BH944186	B11175 F	CO532456	BH974706	BE321377	AW760400	BI922233	BG367066
EST244956	EST246850	EST252441	BOIHF12TR	BOIHF12TF	AJ611569	BOHCO62TF	949023G05	qo78e11.b	AU287072	EST706843	6140		obu90a02.	B11175 F14L4-Sp6 I	3530_1_21		NF042H09I	в149g03.у	EST542136	HVSME1001

ALIGNMENTS

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 1
CL949010
Ś
                                         밁
                                                                           á
                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                       Query Match
Best Local Sim
Matches 1026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                  source
                                                                                  108
  168 GTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Chen Chen
Department of Bioinformatic
Beijing Institute of Genomics
Chinese Academy of Sciences, Beijing 101300, China
Tel: 86-10-80481559
Fax: 86-10-80488676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ma,L., Wangc,J., Chen,C., Liu,X., S
Jiao,Y., Sun,N., Zhang,X., Bao,J.,
Wong,G.K.S., Deng,X.W. and Wang,J.
An analysis of transcriptional reguits comparison to Arabidopsis
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oryza sativa (indica cultivar-group)
Oryza sativa (indica cultivar-group)
Bukaryota; Viridiplantae; Streptophyta; Em
Spermatophyta; Magnoliophyta; Liliopsida;
Ehrhartoideae; Oryzeae; Oryza.
1 (bases 1 to 1719)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CL949010 1719 bp DNA linear GSS 21-SEP-2004 OBIFS002788 Oryza sativa Express Library Oryza sativa (indica cultivar-group) genomic, genomic survey sequence.
CL949010
                                                                                                                                                                                                                                                                                                                                                                                             Rice genomic sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                   Email: chenchen@genomics.org.cn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CL949010.1 GI:52361019
                                                                                                                                               Similarity
                                                                                CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTTGCGTCGACGCAGCTACGAGC 167
                                                                                                                       35.8%;
ilarity 65.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                          exon-trapped
                                                                                                                                                                                                                        /organism="Oryza sativa (indica cultivar-group)"
/mol_type="genomic DNA"
/mol_type="genomic DNA"
/db_xref="ftaxon:39946"
/clone_llb="Oryza sativa Express Library"
/note="Oryza sativa exon trapped genomic sequence"
                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                       Score 587; DB 9; 1
Pred. No. 1.6e-164;
D; Mismatches 385;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         regulation of the rice genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Su,N., Li,L., Wang,X., Cao,M., Sun,D., Zhao,H., Yuan,L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Embryophyta; Tracheophyta;
a; Poales; Poaceae;
                                                                                                                                                            Length 1719;
                                                                                                                         Indels 168;
                                                                                                                                                                                                                             sequences
                                                                                                                         Gaps
    227
                                           182
```

```
Ş
                                    밁
                                                      ş
                                                                                망
                                                                                                    Ş
                                                                                                                               밁
                                                                                                                                               δ
                                                                                                                                                                             밁
                                                                                                                                                                                                á
                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
              1227
                                                                                  1032
                                                                                                                                                      1047
                                                                                                                               972
                                                                                                                                                                             912
                                                                                                                                                                                                                           852
                                                                                                                                                                                                                                                948
                                                                                                                                                                                                                                                                       793
                                                                                                                                                                                                                                                                                              888
                                                                                                                                                                                                                                                                                                                     735
                                                                                                                                                                                                                                                                                                                                         828
                                                                                                                                                                                                                                                                                                                                                                 675
                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                           555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                       768
                                                                                                                                                                                                                                                                                                                                                                                                                                    708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           228
TCATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAA
                                                    TAATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGC
                                                                                                        CCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCTGTTTT
                                                                                                                               GTCATTTTCTGCTAGGGAGGTTTCAGATGGTACTCTGTTTAAAACCATAAAGGATTGGGA
                                                                                                                                                      GTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGA
                                                                                                                                                                             CATTATGGATACAACTGAGAACATAACATCCAGCATGGAGTGTGGAAAGCCAACTCTATT
                                                                                                                                                                                                    CAACATG-----
                                                                                                                                                                                                                                                GCCGACAAATATTATTAACATTGAAATTCCTTCCACTAGCGTTACAGAAACAGCTCTAGT
                                                                                                                                                                                                                                                                                      GAAAGATAAGCGCGTATACCACTGTGATGAAGAGGGAATATCAAAATATTCTGGCTG
                                                                                                                                                                                                                                                                                                                     CTCAGAATATTGCAAAGCTGATAATATATACTGGAAGCATTTCTTTGAGGGAAAGGGA--
                                                                                                                                                                                                                                                                                                                                 TTCAAAGAATTGCAAGGGTGATAACACATCCTGGACGCATTTTTCTGGGGGGTGCTGCAAA
                                                                                                                                                                                                                                                                                                                                                                                  TGAGGGAACTGCTCGGTTGTTGTCCAATTCTTTTGCGTCGTCATTGTGGCTTATGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCTTTGAAACTGCTTTAAAACTCCGGTGGCGGCCCTTCTATAGTATTTTGCCCATTCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTCAAATG:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCTTACAACCAGACGGATCATCCAGAGTGCAAGTCAAGGCCTGACAGTGGTCTTTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAATCCCCTCACACCCTGGGAGAGCCCCCAATAAAGAATGTGTTCTGCATATATGGGCT
                                                                                  CCCTCAGAGCATAGGGCTTATCCATCAGCTTGAGAAGTACTACCAGGGTGATCCAGTTCT
                                                                                                                                                                                                                        GCCCACAAACCTTGTCAGCATCGAGGTTCCTACAGTTCGAGATACGGAAGCATACCCATC
                                                                                                                                                                                                                                                                                                                                                                 CGAGGGAACAGCACGATTGATGTTTAATGCATTTGGTTCATCTTTATGGCTCATGCCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTTCTGTTGAGGCAATCAAATCTACTCTCTCTGGTGTAACGTTTGGCCTTCCTGTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTACATCCGATGGCTTGACGAACATATACATGCATACTTTGCAGTTGGTGCACCTCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTATTTGAAGTGGCTTGATCAGCATATCCATGCTTATTTTCGCTGTTGGAGCTCCTCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTAATAATGTGTTTCGCTACTTTCTGGAATGGTTGAAACTAGAAATCGCTCCCAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTTTTGAAACTGCATTGAAACTTCGAGGAGGGCCTTCTTTAGTGTTTTGCTCATTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTTAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTAGACACCACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGA
                                                                                                                                                                                                                                                                       - GGTTGCCACCACAGACAGCAATGTGATGAAATGGAATATAAGTCTGAATACTCAGGATG
                                                                                                                                                                                                                                                                                                                                                                                                              TGGTTCTACTGAAGCAGTTAAAGCTGCTCTTTCTGGAGCAACATTTGGTCTTCCAGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGGAGATTGTCACCAACCAAATTGGAAGAGCGTGACCTTTACTTTCACAAGCTCAAGTT
                                                                                                                                                                                                   -----ACCAGCATGGAATGTGGCCTTCCCACCCTTTT
                                                                                                       1166
                                    1151
                                                                                  1091
                                                                                                                                                   1106
                                                                                                                                                                                                                                                 1007
                                                                                                                                                                                                    1046
                                                                                                                                                                                                                                                                                              947
                                                                                                                                                                                                                                                                                                                                         887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               347
                                                                                                                                                                             971
                                                                                                                                                                                                                          911
                                                                                                                                                                                                                                                                       158
                                                                                                                                                                                                                                                                                                                                                                                      827
                                                                                                                                                                                                                                                                                                                                                                                                              674
                                                                                                                                                                                                                                                                                                                                                                                                                                    767
                                                                                                                                                                                                                                                                                                                                                                                                                                                           614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                   792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2
AU237072
                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1287
/mol_type="mRNA"
/db_xref="taxon:3702"
/clone="RAFL15-47-A08"
/tissue_type="mixture o:
/lab_host="DH10B"
                                                        organism="Arabidopsis"
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 596)
1 (bases 1 to 596)
1 (bases 1 to 596)
7 (Carninci, P., Kawai, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AU237072
AU237072.1
                                                    Email: mseki@rtc.riken.go.jp
An Arabidopsis full-length cDNA library was constructed essentially as reported previously (Seki et al., 1998).cDNA cleaved with BamHI and XhoI was ligated to modified Lambda FLC-1 vector (Carninci et al., submitted for publication) digested with BamHI and SalI. This clone is in a modified pBluescript vector. Please visit our web site (http://www.gsc.riken.go.jp/e/plant/index _e.html) for further
                                                                                                                                                                                                                                                                                   RIKEN Genomic Sciences Center
3-1-1 Koyadai, Tsukuba, Ibaraki
Tel: 81-298-36-4359
Fax: 81-298-36-9060
                                                                                                                                                                                                                                                                                                                                                                                                                                          Seki,M., Narusaka,M., Ishida,J., Kamiya,A., Satou,M., Nakajima,M., Akiyama,K., Enju,A., Oono,Y., Sakural,T., Carninci,P., Kawai,J., Itoh,M., Ishii,Y., Arakawa,T., Shibata,K., Shinagawa,A., Muramatsu,M., Hayashizaki,Y. and Shinozaki,K. Large scale analysis of Arabidopsis full-length cDNA Unpublished (2002)
Contact: Motoaki Seki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AU237072
AU237072 RAFL15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTCTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTAAAGTTAACATAACAATGGCTCCCCAGCCAGAACACGATGGAAGCGACGTACATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTCTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACATGTGAAGTACATAACCTACTTTGAAGATGCTGAAAGCATTCCGGGATGGAGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAGAGCATTCCGGGGAAGAGAACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANAGATGAATGTCGACCACCATGTAGGCCAGGGCATACTCCCAAACATGACGAGGACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAACTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCAAAAGTGAACATAACTAGGGCTCCGCAGGCAGAACATGATGGATCTGATTTACAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATAGTAACACAATTTATTCTTTCCAGATCAGGTAATTCTGTTACTGGAAAGCCCCAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGATAATAACTGATATTATTATGAATTTGAAGGGTCTCTACTATCAAGGCAGAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGATTCAAAGACTGAGGTAGGCTATTATTTTGCACCGAGTGGAAAACCATATCCAGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCCAGCGGAGACGGAACGGTATCCTACAATTCTCTCTCATGGTGCAAGAACTGGCTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TATAACTGGGGATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                   Functional Genomics Research
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:19876241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    596 bp mF
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TCTGGAACTGTGGTTGATGGGAACGCTGGACC
                                                                                                                                                                                                                                                                                                                                                        305-0074,
                                                                                                                                                                                                                                                                                                                                                                                                                Group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RNA linear EST 01-APR-2002 CDNA clone RAFL15-47-A08 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1571
```

of f

silique

and flower"

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
CK259394
LOCUS
                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  र्
                               FEATURES
                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                Unpublished (2003)
Other_EST8: EST705470 EST705471 EST705473
COntact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _
                                                                                                                                                                                                                                                                                                                                                        EST705472 potato abiotic stress cDNA library clone POAB029 5' end, mRNA semiarro
                                       Email: potato-array@tigr.org
Clones can be requested from the University of Arizona
Institute via http://genome.arizona.edu/orders/ .
Seq primer: CAG GAA ACA GCT ATG ACC .
                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterias; lamiids; Solanales; Solanaceae; Solanum.

1 (bases 1 to 946)

Buell,C.R., Hart,A., Zismann,V., Karamycheva,S.A. and Baker,B. Generation of ESTs from abiotic stressed potato tissue
                                                                                                                                                                                                                                                                                                                  CK259394
CK259394.1 GI:39816372
EST.
                                                                                                                                                                                                                                                                                    Solanum tuberosum (potato)
Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAACCA 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTGAGTTTGGTNTAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATNGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTGAGTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGATTGGAGATTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTNAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTTGCGGTGGCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAACCA 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCCATCACAGAATTG 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATGGCTAGACACCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTTGCGGTGGCCGAACTGCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGGAGCGAATTCGAAATCAGTAACGGCTTCCTTCACCGTCATCGCCGTTTTTTTCTTG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                  Location/Qualifiers
1. .946
/organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="RAPL15"
/note="Site_1: BamHI; Site_2: SalI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 484; DB 1;
Pred. No. 1e-133;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 596;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                   Solanum
                                                                                                                                                                                                                                                                                                                                                                                                  EST 03-AUG-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                   tuberosum cDNA
                                                                              Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
```

á 밁 á 밁 S 밁 Ś 밁 S В S 밁 S 밁 S 밁

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                              1077
                                                                                                                                                                                                                                                                                                                                                                1017
                                                                                                                                                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                          CAGCATGGAATGTGGCCTTCCCCACCCTTTTTGTCTTTTCACAGCCCGTGAACTAGCAGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGACGCATTTTTCTGGGGGTGCTGCAAAGAAGATAAGCGCGTATACCACTGTGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGCAAGGGTGATAACACATC 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCTGGTGTAACGTTTGGCCTTCCTGTTTCTGAGGGAACTGCTCGGTTGTTGTCCAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGAGGCAATCAAATCTACTCT
AAAGAAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTTCCTTGGGAGAGACCACC 1196
                                                                                                                                                                                                                           GACTCTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGTT
                                                                                                                                                                                                                                                                                                       TGGAATGGAATGTGGATTCCCGACACAATTGTCCTTTTTCTGCTCGTGAAGTCTCTGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCGGGGTCTACATTTGGTCTTCCTGTTTCAGAGGGGACAGCTCGCCTGATGTTCAATAC
                                                                                                                                                                                 AACCTTTTTCAAAGCCATAAAGAATTATGATCCTGACAGTGAAAGACTCTTTCACCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                            TTCGATTCGAGGGAATGAGGTTTATCCCTCAGTTGTAGAAACTGCCCAAACCAACTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCCACTAG-----CGTTACAGAAACAGCTCTAGTCAACATGAC 1016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGAGGAATATCAATCAAAATATTCTGGCTGGCCGACAAATATTATTAACATTGAAATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGAGACATTTCTCT----GGTGGAAACAGAAAATACCATCATGCCTACCATTGCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTTGGATCTTCTATATGGATGTTACCATTTTCAAAATATTGTACAACTGATAATGCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCCTATTTTGCTGTTGGAGCTCCTCTTCTTGGTGCTATCGAGACAGTCAAAGCAACATT
                                                         AAAAAAGTCTTACCATGATGATCCGATTTTAAATCCTCTAACACCTTGGGAAAGACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                following application of the salt stress (leaves: 2hr, following application of the salt stress (leaves: 2hr, fohr, 12hr, id, 2d, and 4d; roots: 2hr, 6hr, 12hr, and 2d). Set 2 were grown under the standard conditions and then were water stressed by withdrawal of further watering applications. Drought stressed plants were harvested after cessation of watering (leaves: 3d, 5d, and 7d; roots: 3d and 5d). Set 3 were grown under the standard conditions and then were cold stressed by placement at 4 C. Cold stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d. Set 4 were grown under the standard conditions and then were heat stressed by placement at 35 C. Heat stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat-stressed roots were harvested at 3 hr, 6 hr, 12 hr, 1 d, and 4d and heat-stressed roots were harvested at 5 hr, 6 hr, 12 hr, 1 d, and 4d. RNA was isolated from all tissues and equal RNA from each tissue and stress was pooled to construct the CDNA library. RNA sample."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="abiotic stress treated leaf and root tissue"
/lab host="PHIGH-TonA"
/clome lib="potato abiotic stress cDNA library"
/note="Vector: pCMVSport6.1; Site_1: EcoRI; Site_2: NotI;
supplier: Solanum tuberosum var. Kennebec plants were
grown from cuttings on a 16hr light/8 hr dark cycle at 25
C for 3-4 weeks. Abiotic stress conditions were applied to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         four separate sets of plants. Set 1 involved saturation the soil with 150 mM NaCl and tissues were harvested at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:4113"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="POAB029"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rown from cuttings on a rour representation of for 3-4 weeks. Abiotic stress conditions were applied to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 464.2; DB 7;
Pred. No. 1.1e-127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 946;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                              1136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                               537
                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                          417
                                                                                                                                                                                                                                                                                                                                                                   1076
                                                                                                                                                                                                                                                                                                                                                                                                                            357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           737
```

ORIGIN

Matches

δ

밁

밁

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
CF844688
LOCUS
                                          ORIGIN
                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
   Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                 source
     Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1556
                                                                                                                                                                                                                                                                               1880 Pratt Dr., Blacksburg, VA 240 Tel: 540-231-7318
Email: bmtyler@vt.edu
PCR PRimers
PORWARD: BK reverse primer
BACKWARD: BK reverse primer
Plate: 029 row: F column: 13
Seq primer: BK reverse primer
High quality sequence stop: 752.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tyler, B.
Tyler, B. Not Published
Unpublished (2003)
Contact: Tyler B
Tyler lab
VBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CF844688
CF844688.1 GI:38060342
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CP844868 752 bp mRNA linear EST 30-OCT-200: psHB029xF13f USDA-IFAFS:Expression of Phytophthora sojae genes during infection and propagation_sHB Phytophthora sojae cDNA clone sHB029F13 5, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phytophthora sojae
Phytophthora sojae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; stramenopiles;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Phytophthora.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTAAGTACATAACCTTTTATGAAGACTCTGAGAGGCATTCCGGGGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAATGTTGATCAT-GAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGGGATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAAGGATCTCTGTATTCCCCGGTCAGGAAATCTGGTTGAAGGAAACCCTGGTGCAACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGAAGGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAAC 1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGAAGTACATAACCTATTATGAGGATTCTGAAAGTTTTCCAGGAACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGTGAACATAACAAGGACACCACAGTCAGAGCATGATGGCTCAGCTGTACAAGTGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTTAACATAACAATGGCTCCCCAGCCAGAACACGCGATGGAAGCGACGTACATGTGGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGGATGAGACGGTGCCATACCATTCCCTCTCCTGGTGCAAGAATTGGCTGGGGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCACCAAGTGGGAAGCCTTATCCTGATAATTGGATTATAACAGATGTGATATATGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAATATAGAGCATCCAACATGGTGAAGATATCATTCCCAATATGACAAAGTTAGCTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCCCCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAAC 1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 752)
                                                                                                                                                 /organism="Phytophthora (mol_type="mRNA"
/db_xref="taxon:67593"
/clone="sHB029F13"
/tissue_type="mycelium"
/cell_line="P6497"
                                                  /dev_Etage="48 hr. post infection stage"
/lab host="Soybean plant"
/clome lib="USDA-IFAFS:Expression of Phytophthora sojae
/clome ouring infection and propagation sHB"
/note="Vector: pBK-CMV; Site_1: EcoR1; Site_2: Xho1"
   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oomycetes;
   438.
   .
8
                                                                                                                                                                                                                                                sojae"
   멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pythiales;
   7;
   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pythiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 30-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  597
                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
CK939714
LOCUS
                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity Matches 526; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                          EST.

Citrus sinensis

Citrus sinensis

Citrus sinensis

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Eukaryota; Vagnoliophyta; eudicotyledons; core eudicots;

rosids; eurosids II; Sapindales; Rutaceae; Citrus.

1 (bases 1 to 713)

Uratsu,S., Baek,J., Leslie,A., Xu,J., Cook,D. and Dandekar,A.

Analysis of peel specific genes in Citrus (2004)

Unpublished (2004)

Contact: Abhaya Dandekar, PhD

CAES Genome Facility
                                                                                                                                                                                                                                                                                                                                                    CK939714 713 bp mRNA linear CGF1004746_F04 Developing fruit flavedo at 165 DAFB cDNA clone F1650002_IIF_F04 5', mRNA sequence.
CK939714 CK939714
                                                                         UC Davis, Department of One Shields Ave, Davis,
Email: amdandekar@ucdavis.edu
Seq primer: WSC-F-TCCGAGATCTGGACGAGC
                                    Tel: 530 752 7784
Fax: 530 752 8502
                                                                                                                                                                                                                                                                                                                                       CK939714.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCAGCTACGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTATTTGAAGTGGCTT-GATCAGCATATCCATGCTTATTTCGCTGTTGGAGCTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCTTTGAAAACTGCTTTAAAAACTCCGTGGCGGCCCTTCTATAGTATTTTGCCCCATTCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGGAGATTGTCACCAACCAAATTGGAAGAGGCGTGACCTTTACTTTCACAAGCTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATTAAGTGGTGTATTGAATTTGGCATAGAAGCTAATGCAATAATTGCTGTTCCATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTTAAGTGGTGTTGAGTTTTGGTATAGAAGCAAATGCAATTGTCGCTGTTCCATACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATTACAGAACTTGATCCGGGTTATATAACAGGACCTCTTTCATCGGTTTGGAAAGAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCGACACCAAACTTCTTTCTGCTGTCAATTGCTGGCTTAAGTGTATGGTGTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAGACACCACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTCCATTCTCGACTGTCCTTACTCTCCGCTCGATTTCAACCCTCTCGATTTGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGGTGCANTGGANACCATTGAAGCAACACTTTCTGGATTCACATTTGGTCTTCCTAT 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TreeTTCTGTTGAGGCAATCAAATCTACTCTCTGGTGTAACGTTTGGCCTTTCCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTATATCCAGTGGGTTGGATCAACATATTCGTGCCTATNTTGCTGTTGGAGCTCCCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGTAATCATGTTTTCCGTTATTTCTTGGAGTGGTTGAAGCTAGAGATTGCACCANAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGGCTAGAAATTGCACCAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGGAGATTGTCGCCCTCCAAGCTTGAAGAGCGGGACCTTTACTTTCATAAGCTAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCTTACAATCAGACAGATCATCCTGATTGCAAGTCCCGTCCTGATAGTGGTCTTTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACTACTCGAAGCTCTCCGGCATTATAATCCCTGGCTTCGCATCCACTCAGCTCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                       GI:45452970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 4.5e-120;
D; Mismatches 131;
                                                                         CA 95616,
                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                           EST 19-MAR-2004
Citrus sinensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                764
```

587

527 453 467 393 407 333 347 273 213

287

153 167

513

693

633 647 573 Ś 밁 Ś 밁 Ś 문 Ş 밁 Ş

밁

```
멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઇ
                                                                                               ঠ
                                                                                                                                       밁
                                                                                                                                                                      र्
                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                     ક
                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                              ક
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
568 ATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGCTGAGG
                                                              564
                                                                                                   808
                                                                                                                                         504
                                                                                                                                                                              448
                                                                                                                                                                                                                  444
                                                                                                                                                                                                                                                         388
                                                                                                                                                                                                                                                                                                 384
                                                                                                                                                                                                                                                                                                                                    328
                                                                                                                                                                                                                                                                                                                                                                            324
                                                                                                                                                                                                                                                                                                                                                                                                               268
                                                                                                                                                                                                                                                                                                                                                                                                                                                       264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28
                                                                                                                                                                                                                                                                                                                                                                                                             TTTAAGTGTATGGTGCTAGATCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGTCGACTCAGCTGAGAGCATGGTCAATCCTCGACTGTCCGTACTCTCCTCTCGATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGTCGACGAGCTACGAGCGTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAGGCGGCGAGTTCACCGGGGACTACCCCAAGTTGTCCGGAATCATAATACCAGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATGAGACCGAGTTTCACGGCGACTACTCGAAGCTATCGGGGTATAATCATTCCGGGATTT
                                                                                   TACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCT
                                                                                                                                                                                                                                                                                                                                                                          CTTAAGTGCATGACACTAGATCCTTACAATCAAACAGATAATCCCGAATGCAAGTCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGTCGTCCTCCTCGTCGTCGTCGTTCTGCTTGGAGCCCTGCGCGAAGCCTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTTCCTTCACCGTCATCGCCGTTTTTTTTCTTGATTTGCGGTGGCCGAACTGCGGTGGAG
                                                            TATTTTCACAAACTAAAGTTGACATTTGAAACTGCCCTTAAACTTCGTGGTGGCCCCTCA
                                                                                                                                         TCCTCAGTGTGGAAAGAATGGGTTAAGTGGTGCGTTGAGTTTGGTATAGAGGCTAATTCA
                                                                                                                                                                                                                                                   TCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCA 447
                                                                                                                                                                                                                                                                                                 CCTGATAGTGGTCTTTCCGCAATTACAGAACTTGATCCAGGTTATATAACAGGTCCTCTG
                                                                                                                                                                                                                                                                                                                                    CCTGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTT 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone lib="Developing fruit flavedo at 165 DAFB"
/note="Organ: Fruit; Vector: pTriplEX2; Site 1: SfiIA;
Site_2: SfiIB; Developing citrus fruits were Tharvested
from trees growing in the 'Citrus variety collection' in
the Wolfskill experimental orchard located in Winters,
California (USA). Fruit was collected on October 22, 2003,
between 8 to 9 am and stored at 4C. The flavedo tissue was
dissected out of developing fruit (165 DAFB) and used to
isolate RNA using Trizol reagent from Invitrogen. The cONA
Library was constructed using the SMART cDNA library Kit
(Clontech). The primary library was en masse evicted and
plasmid DNA containing the cDNA library was then
transformed into ultra competent B coli cells (XL10 Gold;
Stratagene). Transformants were plated out on Q-trays
(2000 cfu/tray), picked using a Obot and archived in 384
well dishes "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /dev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                well dishes."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /lab_host="XL10-Gold"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cultivar="Washington navel orange"
/db xref="taxon:2711"
/clone="p1550002 IIF F04"
/sex="Hermaphrodite"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Citrus sinensis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stage="Developing fruit sample-collected October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           type="Falvedo"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 397; DB 7; 1
Pred. No. 1.7e-107;
0; Mismatches 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 713;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                  503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143
                                                                                                                                       563
                                                                                                                                                                                                                                                                                                 443
                                                                                                                                                                                                                                                                                                                                                                          383
                                                                                                                                                                                                                                                                                                                                                                                                               327
                                                                                                                                                                                                                                                                                                                                                                                                                                                     323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                147
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
CK259393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           624 TTAGTTCTTGCTCATTCATTGGGTAATAATGTGTTTCGTTACTTTCTGGAGTGGCTAAAG 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 788)
Buell, C.R., Hart, A., Zismann, V.,
Generation of ESTs from abiotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamilds; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST.
Solanum tuberosum (potato)
Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST705471 potato abiotic stress cDNA library Solanum tuberosum cDNA clone POAB029 5' end, mRNA sequence. CK259393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: potato-array@tigr.org
Clones can be requested from the University of Arizona Genomics
Institute via http://genome.arizona.edu/orders/
Seq primer: ATT TAG GTG ACA CTA TAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Robin Buell
The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2003)
Other_ESTs: EST705470 EST705472 EST705473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CK259393.1 GI:39816371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9712 Medical Center Dr, Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTAGAAATTGCACCAAAACATTATTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTAGAAATTCCCCCAAAACAATATATCAA
                                                                                         four separate sets of plants. Set 1 involved saturation of the soil with 150 mM NaCl and tissues were harvested at following application of the salt stress (leaves: 2hr, 6hr, 12hr, 1d, 2d, and 4d; roots:2hr, 6hr, 12hr, and 2d). Set 2 were grown under the standard conditions and then were water stressed by withdrawal of further watering applications. Drought stressed plants were harvested after cessation of watering (leaves: 3d, 5d, and 7d; roots:3d and 5d). Set 3 were grown under the standard conditions and then were cold stressed by placement at 4 C. Cold stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat stressed by placement at 35 C. Heat stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat stressed roots were harvested at 5 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat stressed roots were harvested at 5 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat stressed roots were harvested at 6 hr, 12 hr, 1 d, and 4d. RNA was isolated from all tissues and stress was not of the stress and stress was not determined.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /lab host="blius-lum / lobor | library" / clone libe potato abiotic stress cDNA library" / clone libe potato abiotic stress cDNA library" / note="Vector: pCMVSport6.1; Site 1: EcoRI; Site 2: NotI; / note="Vector: pCMVSport6.1; Site 1: EcoRI; Site 2: NotI; supplier: Solanum tuberosum var. Kennebec plants were grown from cuttings on a 16hr light/8 hr dark cycle at 25 grown from cuttings on a 16hr light/8 hr dark cycle at 25 grown from stress conditions were applied to C for 3-4 weeks. Abiotic stress conditions were applied to C for 3-4 weeks. Abiotic stress conditions were applied to C for 3-4 weeks.
                               equal RNA from each tissue and stress was pooled to construct the cDNA library. RNA sample."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="abiotic stress treated leaf and root tissue"
/lab_host="DH10B-TonA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:4113"
/clone="POAB029"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Solanum tuberosum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zismann, V., Karamycheva, S.A. and Baker, B. rom abiotic stressed potato tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 788 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 03-AUG-2004
```

Matches 563; Query Match Best Local

Similarity

23.5%;

Score 386.2; Db /; Pred. No. 3.1e-104; Mismatches 203;

Indels Length 788

25;

Conservative

678 TGCTTATTTCGCTGTTGGAGCTCCTCTTCTTGGTTCTGTTGAGGCAATCAAATCTACTCT 737

```
RESULT 7
CK260764
LOCUS
DEFINITION
  JOURNAL COMMENT
                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                358
                                                                                                                                                                                                                                                                                                                                                                                                                                 778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                 CK260764.1 GI:39817742
CK260764.1 GI:39817742
EST.
Solanum tuberosum (potato)
Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Spermatophyta; Magnoliophyta; Solanaceae; Solanum.
                                     1 (bases 1 to 968)
Buell, C.R., Hart, A., Zismann, V., Karamycheva, S.A. and
Generation of ESTs from abiotic stressed potato tissue
                                                                                                                                                                                                                                                                         CK260764 968 bp mRNA linear I EST706842 potato abiotic stress cDNA library Solanum clone POAB552 5' end, mRNA sequence.
Unpublished Other_ESTs:
                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTGAACATA 788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGTTAACATA 1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGGGATGAGACGGTGCCATACCATTCCCTCTCCTGGTGCAAGAATTGGCTGGGGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGGATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGAAGGATCTCTGTATTCCCGGTCAGGAAATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGAAGGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATAA 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGCCCCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAAA 1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAAAGAAGTTGTATCATGATGACCCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGACCAC 1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAACCTTTTTCAAAGCCATAAAGAATTATGATCCTGACAGTGAAAGACTCTTTCACCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACTCTTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAGT 1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGAATGGAATGTGGATTCCCGACACAATTGTCCTTTTCTGCTCGTGAAGTCTCTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCATGGAATGTGGCCTTCCCACCCTTTTGTCTTTTCACAGCCCGTGAACTAGCAGATG 1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCGGAGACATTTCTCT---GGTGGAAACAGAAAATACCATCATGCCTACCATTGCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGGACGCATTTTTCTGGGGGTGCTGCAAAGAAAAGATAAGCGCGTATACCACTGTGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATTTGGATCTTCTATATGGATGTTACCATTTTCAAAATATTGTACAACTGATAATGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTTTGCGTCGTCATTGTGGCTTATGCCATTTTCAAAGAATTGCAAGGGTGATAACACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCCGGGGTCTACATTTGGTCTTCCTGTTTCAGAGGGGACAGCTCGCCTGATGTTCAATA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCTGGTGT-AACGTTTTGGCCTTCCTGTTTTCTGAGGGAACTGCTCGGTTGTTGTCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCACCAAGTGGGAAGCCTTATCCTGATAATTGGATTATAACAGATGTGATATATGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAAAAAAGTCTTACCATGATGATCCGATTTTAAATCCTCTAACACCTTGGGAAAGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTCGATTCGAGGGAATGAGGTTTATCCCTCAGTTGTAGAAACTGCCCAAACCAACTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTCCACTAG-----CGTTACAGAAACAGCTCTAGTCAACATGA 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCCTATTTTGCTGTTGGAGCTCCTCTTCTTGGTGCTATCGAGACAGTCAAAGCAACATT
  1 (2003)
EST706843
                                                                                                                                                                                                                                                                                                                     EST 03-AUG-2004
                                                                                                                                                                                                                                                                                                 tuberosum
                                                             Baker,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417
                                                                                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                              δ
                                                                                 밁
                                                                                                                     Ş
                                                                                                                                                                   밁
                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                           1288
                                                                                                                                                                                                               1228
                                                                                                                                                                                                                                                                                                                                                                                   1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                 322
                                                                                                                                                                                                                                                                                                                                         142
                                                                                                                                                                                                                                                       202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 477;
                                                                                                                                                                                                                                                                                                                                                                                                                             82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: potato-array@tigr.org
Clones can be requested from the University of Arizona Genomics
Institute via http://genome.arizona.edu/orders/ .
Seq primer: ATT TAG GTG ACA CTA TAG.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville,
                                                                                                                                                                                           CATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAAT
                                       GTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACTC
                                                                                                              TGGATCATCATGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGGTCTGGAACT
                                                                                                                                                                                                                                                                               AATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCT
                                                                                                                                                                                                                                                                                                                                         CCTGACAGTGAAAGACTCTTTCACCTTTTAAAAAAAGTCTTACCATGATGATCCGATTTTA
                                                                                                                                                                                                                                                                                                                                                                            CCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCTGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCCACCCTTTTG
  CTGGTTGAAGGAAACCCTGGTGCAACAAGTGGGGATGAGACGGTGCCATACCATTCCCTC
                                                                                                                                                                     GATTCGAAGACTGAGGTTGGTTACTATTTTGCACCAAGTGGGAAGCCTTATCCTGATAAT
                                                                                                                                                                                                                                                       AATCCTCTAACACCTTGGGAAAGACCACCTCTCAAGAACATATTCTGCATTTATGGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                           TCCTTTTCTGCTCGTGAAGTCTCTGATGGAACCTTTTTCAAAGCCATAAAGAATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGATTATAACAGATGTGATATATGAAATCGAAGGATCTCTGTATTCCCGGTCAGGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C for 3-4 weeks. Abiotic stress conditions were applied to four separate sets of plants. Set 1 involved saturation of the soil with 150 mM NaCl and tissues were harvested at following application of the salt stress (leaves: 2hr, 6hr, 12hr, 1d, 2d, and 4d; roots:2hr, 6hr, 12hr, and 2d). Set 2 were grown under the standard conditions and then were water stressed by withdrawal of further watering applications. Drought stressed plants were harvested after cessation of watering (leaves: 3d, 3d, 3d, 7d, roots:3d and 5d). Set 3 were grown under the standard conditions and then were cold stressed by placement at 4 C. Cold stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, and 4d and roots were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d. Set 4 were grown under the standard conditions and then were heat stressed by placement at 35 C. Heat stressed leaves were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat-stressed roots were harvested at 2 hr, 6 hr, 12 hr, 1 d, 2d and 4d and heat-stressed roots were harvested at 6 hr, 12 hr, 1 d, 2d and 4d and heat-stressed roots were harvested at 6 hr, 12 hr, 1 d, 2d and 4d and 4d. RNA was isolated from all tissues and construct the CDNA library. RNA sample."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone lib="potato abiotic stress cDNA library"
/note="Vector: pCMVSport6.1; Site 1: EcoRI, Site 2: NotI;
supplier: Solanum tuberosum var. Kennebec plants were
grown from cuttings on a 16hr light/8 hr dark cycle at 25
C for 3-4 weeks. Abiotic stress conditions were applied to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="abiotic stress treated leaf
/lab_host="DH10B-TonA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Solanum tuberosum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone="POAB552"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:4113"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 376.8; 1
Pred. No. 2.3e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.3e-101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              o
;:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

á

1347

1407

381

441

1287

321

261

1227

201

141 1107

1047

0

81

δ

243

1227 183

1287

303

1407

423

1347

363

123

```
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 8
BQ508623
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
  밁
                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     र्
                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                            Query Match
Best Local Similarity
Matches 475; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                622
                                     988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; asterids; lamids; Solanales; Solanaceae; Solanum.

1 (bases 1 to 686)

Buell, C.R., Hart, A., Baker, B., Tanksley, S., Fry, W., Smart, C., Restrepo, S., Griffiths, H., van der Hoeven, R., Tsai, J. and Karamycheva, S.A.

Generation of a set of potato cDNA clones for microarray analyses in the control of a set of potato cDNA clones for microarray analyses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BQ508623

686 bp mRNA linear EST 07-MAR-2003 EST616038 Generation of a set of potato cDNA clones for microarray analyses mixed potato tissues Solanum tuberosum cDNA clone STMGX37
  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2002)
on Jun 10, 2002 this sequence version
Other ESTS: EST616039
Contact: Robin Buell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BQ508623.2 GI:21924395
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             http://genome.arizona.edu/orders/
Seq primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: potato-array@tigr.org
This clone can be obtained from the University of Arizona Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Institute for Genomic Research 9712 Medical Center Dr, Rockville, MD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Solanum tuberosum (potato)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BQ508623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Institute. Orders can be made through URL:
  GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCCACCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTTTTCCAGGAACGAGAACAGCAGTTTGGGAGCTTGATAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAAAG 1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAG 1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATC 1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTGGTGCAAGAATTGGCTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGATGGCTCAGCTGTACAAGTGCATCAAAATATAGAGCATCAACATGGTGAAGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 end, mRNA sequence.
                                                                            Conservative
                                                                                                                                                                         /clone_lib="Generation of a set of potato cDNA clones for microarray analyses mixed potato tissues" /note="Vector: pBluescrigt SK(-); Site_1: EcoRI, Site_2: XhoI; supplier: Combination of untreated and Phytophthora infestans-treated libraries of stolons, leaves, leaflets, axillary buds of stem explants, petioles, germinating eyes, tubers, or roots."
                                                                                                                                                                                                                                                                                                                /tissue_type="mixed tissues"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                         /cultivar="Kennebec or
/db_xref="taxon:4113"
                                                                                                                                                                                                                                                                                                                                                                                                                   Tow/
                                                                                                                                                                                                                                                                                                                                                       clone="STMGX37"
                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 686
                                                                                             22.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                   _type="mRNA"
                                                                          Score 374.8; DB 5;
Pred. No. 8e-101;
0; Mismatches 167;
                                                                                                                                                                                                                                                                                                                                                                                              Binjte"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               replaced
                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gi:21367492.
                                                                            0;
                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       561
                                       1047
  63
                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
BG600021
LOCUS
                                                                                                                                                                                                                                     JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                              FEATURES
                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
                                                                                                                                                                                                                                                      van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Bougri,O., Buell,C.R., Ronning,C., Tankeley,S. and Generations of ESTs from sprouting potato eyes Unpublished (2000)
                                                                                                                                                                                                                Contact: Robin Buell
The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                  Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamidds; Solanales; Solanacea; Solanum.

1 (bases 1 to 792)
                                                                                                                                                                                                                                                                                                                                                                                                                   Solanum tuberosum (potato)
Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST504916 cSTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG600021.1 GI:13617157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG600021
                                                                                                               This clone can be obtained from the Univer Institute. Orders can be made through URL: http://genome.arizona.edu/orders/
                                                                                                                                                                                                9712 Medical Center Dr, Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATTCGAAGACTGAGGTTGGTTACTATTTTGCACCAAGTGGGAAGCCTTATCCTGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGAC 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCATTCCGGGGAAGAAACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGTTGAAGGAAACCCTGGTGCAACAAGTGGGGATGAGACGGTGCCATACCATTCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTCCCAATATGACAAAGTTAGCTACAATGAAGTACATAACCTATTATGAGGATTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGAG 1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGATGGCTCAGCTGTACAAGTGCATCAAAATATAGAGCATCAACATGGTGGAGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGTCAGACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCTGGTGCAAGAATTGGCTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGATTATAACAGATGTGATATATGAAATCGAAGGATCTCTGTATTCCCCGGTCAGGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCCTCGTGTCAAGGTCTGGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGACAGTGAAAGACTCTTTCACCTTTTAAAAAAGTCTTACCATGATGATCCGATTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCTGTTTTT 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTTTTCTGCTCGTGAAGTCTCTGACGGAACCTTTTTCAAAGCCATAAAGAATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTTTTCCAGGAACGAGAACAGCAGTTTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATCCTCTAACACCTTGGGAAAGACCACCTCTCAAGAACATATTCTGCATTTATGGCGTA
                                                                                             primer: M13F-R
                                                                                                                                                                           potato-array@tigr.org
/organism="Solanum tuberosum"
/mol_type="mRNA"
/cultivar="Kennebec"
                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         792 bp mRNA 1
Solanum tuberosum cDNA clone
                                                                                                                                                         from the University of
                                                                                                                                                                                                MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear EST 07-MAR-2003
e cSTS27C13 5' sequence,
```

645

603

543

483

USA

Arizona

Genomics

and

Baker,

Chiemingo, A.,

```
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                       RESULT 10
CV478732
                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1408
                                                                                                                                                                                                                                                                                                                                                                                          604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                          CV478732 694 bp mRNA linear EST 01-OCT-200. Lu8B4 Flax fiber enriched Lambda ZapII Library Linum usitatissimum cDNA 3', mRNA sequence. CV478732 CV478732.1 GI:53703508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.
                                                                      EST
   Linum usitatissimum
Linum usitatissimum
                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCATTCCGGGGAAGAGAACCGCAGTCTGGGAGCTTGATAAA 1629
                                                                                                                                                                                                                                                                                                                                                                                      AAGTTTTCCAGGAACGAGAACAGCAGTTTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATTCCCAATATGACAAAGTTAGCTACAATGAAGTACATAACCTATTATGAGGATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAGACTCTGA 1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATGATGGCTCAGCTGTACAAGTGCATCAAAATATAGAGCATCAACATGGGTGAAGATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATGAGCATGGGT-CAGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGTTGAAGGAAACCCTGGTGCAACAAGTGGGGATGAGACGGTGCCATACCATTCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACTC 1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATTCGAAGACTGAGGTTGGTTACTATTTTGCACCAAGTGGGAAGCCTTATCCTGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATCCTGATAAT 1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCT 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGACAGTGAAAGACTCTTTCACCTTTTAAAAAAAGTCTTACCATGATGATCCGATTTTA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGATAGCAAGAGAGGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCCTGTTTTT 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCTTTTCTGCTCGTGAAGTCTCTGACGGAACCTTTTTCAAAGCCATAAAGAATTATGAT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGAC 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTGTAGAAACTGCCCAAACCTAACTTGTCTGGAATGGAATGTGGATTCCCGACACAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCACCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCTGGTGCAAGAATTGGCTGGGGCCAAAAGTGAACATAACAAGGACACCACAGTCAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGATTATAACAGATGTGATATATGAAATCGAAGGATCTCTGTATTCCCGGTCAGGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              теватсатся свататся ттасвала ствалент ссстеств телаветствеласт
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATCCTCTAACACCTTGGGAAAGACCACCTCTCAAGAACATATTCTGCATTTATGGCGTA 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:4113"
/clone="STS27C13"
/tlssue_type="sprouting eyes from tubers"
/dev_stage="12-14 weeks post harvest"
/dev_stage="12-14 weeks post harvest"
/lab_host="SOLR"
/clone_lib="SOTS"
/clone_lib="CSTS"
/clone_lib="CSTS"
/clone_lib="CSTS"
/clone_lib="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 367; DB 4;
Pred. No. 1.9e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 792;
                                                                                                                                                                                                                                                                                                                                                                                      646
                                                                                                                                                                                                                         EST 01-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5mm) were
26C in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1047
                                              á
                                                                                                                        밁
                                                                                                                                                                          á
                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 443;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                    1400
                                                                                                                                                                                                                                                                                                                                                                                                                                               1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1160
                                                                                                                                                                                                                                                                                                                    1340
                                                                                                                        361
                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                241
421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                             ATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCTAAAGTTAACATAACAATGGCTCCCC
                                                                                                                                                                                                                                                                                     CTGGAACTGTGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                     CTGATAATTGGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGGT 1339
                                                        AGCCAGAACACGATGGAAGCGACGTACATGTGGAACTAAATGTTGATCATGAGCATGGGT 1519
                                                                                                                                                                                                                                                    CTGGGAATCTAGTGGAAGGGAATCCAGGAGCTACAAGTGGGGATGAGACGGTACCATACA
                                                                                                                                                                                                                                                                                                                                                                                CAGATAATTGGATCATAACAGATGTTATTTATGAAATTGAAGGATCCCTCTACACAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGAGTAGATTTAAAGACAGAGGTTGGTTACTATTTTGCACCAAGTGGCAAGCCTTACC
                                                                                                                     ATTCCTTATCTCTATGCAAGAGTTGGCTTGGACCAAAAGTCAACATAACACGGGCTCCCC
```

δ 밁 ঠ 밁 S В 5 В Ş 밁 Ś 밁 გ 밁 ş ₽ Ś 밁 á 용 á

1459 360 1399

300

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; rosids; eurosids I; Malpighiales; Linaceae; Linum.

1 (bases 1 to 694)

1 (bay, A., Addi, M., Kim, W., David, H., Bert, F., Mesnage, P., Rolando, C. Chabbert, B., Neutelings, G. and Hawkins, S.N.

EST from the Fiber-bearing Stem Tissues of Flax (Linum usitatissimum): Expression analyses of sequences related to cell-wall development plant Biol. (2004) In press

Contact: Neutelings G. Contact: Neu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Laboratoire de Physiologie des Parois Vegetales Universite des Sciences et Technologies de Lille LPPV, SN2 2e etage, USTL, Villeneuve d'Ascq F-596 Tel: (33) (0)3 20 43 40 29 Fax: (33) (0)3 20 33 63 02
                                                                                                                                                                                                                     CTGTTTTAATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTTGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCTTTTGTCTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAG
ATGGTGCTCATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCAAGTGGCAAACCTTATC
                                                                                                                                   CTGTTGTGAATCCTCTTACCCCCTGGGACCGACNTTCAATTAAAAATATTTTCTGCATCT
                                                                                                                                                                                                                                                                                                                                                   ATTATGATTCGGACAGCAAGAGGCTTTTATTCCAATTACAGAAGGCATACCATGGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTATGACCCAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCAGTTATCTTTCTCAGCTCGTGAAGTTGCTGATGGAACGCTTTTTCAGAGCCATAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 il: godfrey.neutelings@univ-lille1.fr
primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:4006"
/tbsue_type="Outer fiber-bearing tissues"
/tlsue_type="Outer fiber-bearing tissues"
/dev stage="Mid-flowering stage"
/dev stage="Mid-flowering stage"
/clone_lib="Flax fiber enriched Lambda ZapII Library"
/note="Site_1: XhoI; Site_2: EcoRI; mRNA were extracted from field grown plants (Dunkerque, France). Following harvest, roots, leaves and flowers were cut-off and discarded, as were the bottom 10 cm of the stem. The following bottom 15-cm section of the stem was then isolated and the outer fiber-bearing tissues peeled off and immediately frozen in liquid nitrogen. Library was constructed using ZAP-cDNA synthesis kit and ZAP-cDNA Gigapack III cloning kit (Stratagene)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Linum usitatissimum"
/mol_type="mRNA"
/cultivar="Hermes"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21.7%;
75.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 355.4; DB 7;
Pred. No. 5.5e-95;
0; Mismatches 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d'Ascq F-59655,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                           1279
                                                                                                                                                                                                                                           1219
                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

á 밁

밁

ঠ

120

240

562 180 502

360 682 300 622

742

```
PUBMED
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
BQ584361
LOCUS
                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADIS DNA core facility at MPIZ
Max-Planck-Institute for Plant Breeding Research
Carl-von-Linne Weg 10, 50829 Koeln, Germany
Fax: 00492215062851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and Radelof,U.

Construction of a 'unigene' cDNA clone set by oligonucleotide fingerprinting allows access to 25 000 potential sugar beet genes plant J. 32 (5), 845-857 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Caryophyllales; Amaranthaceae; Beta.

1 (Dases 1 to 565)

Herwig,R., Schulz,B., Weisshaar,B., Hennig,S., Steinfath,M., Drungowski, M., Stahl,D., Wruck,W., Menze,A., O'Brien,J., Lehrach,H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA clone 024-003-K20 :
BQ584361
BQ584361.1 GI:26113938
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beta vulgaris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BQ584361 565 bp mRNA linear E011859-024-003-K20-SP6 MPIZ-ADIS-024-inflorescence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Weisshaar B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Beta vulgaris
                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12472698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTCCGAGAGCCTCGCAGGGAAGAGGACAGCAGTTTGGGAACTTGACAAA 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGACATCATAGCTAACATGACAAAAGCACCAAGGGTTAAGTACATAACCTTTTATGAAG
                                                               CACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGTTACATAACAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGATATAGTTCCCAACATGACAAGGTCTCCGAGGGTAAAATATTACATACTATGAAG 540
                          CAAGGCCTGATAGTGGACTCTCTGCAATAACAGAACTTGACCCAGGTTACATAACAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTCTGAGAGCATTCCGGGGAAGAGAGACCGCAGTCTGGGAGCTTGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             weisshaa@mpiz-koeln.mpg.de
Length: 565 Std Error: 0.00
Length: K Column: 20
3 row: K Column: 20
imer: SP6; CATACGATTTAGGTGACACTATAG.
                                                                                                                                                                                                            Sequencing granted in the context of the GABI-Beet project, local PI: Dr. Katharina Schmeider, coordinator: Prof. Christian Jung; Sequence submission managed by RZPD/GABI-Primary database: http://gabi.rzpd.de"
                                                                                                                                                                                                                                                                                                                                    /clone_lib="MPIZ-ADIS-024-inflorescence"
/note="Vector: pcMVSPORT6; Site 1: Sal1; Site 2: Not1;
/note="Vector: pcMVSPORT6; Site 1: Sal1; Site 2: Not1;
cDNA library from sugar beet, lTbrary provided by KWS
Kleinwanzlebener Saatzucht AG Einbeck, Germany, contact:
b.schulz@kws.de; cloning sites SalI-NotI, primer sites and
                                                                                                                                                                                                                                                                                               SP6-SalI-CCACGCGTCCG-5prime-cDNA-polyA-CC-NotI-T7; Note:
                                                                                                                                                                                                                                                                                                                         orientation:
                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="inflorescence"
/lab_host="EMDH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:161934"
/clone="024-003-K20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Beta vulgaris"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cultivar="KWS2320 (double haploid, monogerm breeding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _xref="GABI:182335"
                                                                                                                          21.48;
                                                                                                       Score 350.8; DB 5;
Pred. No. 1.2e-93;
D; Mismatches 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5-PRIME, mRNA sequence.
                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beta vulgaris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST 06-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1579
                          60
                                                                 382
                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                           JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
CD710878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CD710878 1inear EST 25-JUN-20
VVA026C02 402285 An expressed sequence tag database for abiotic
stressed leaves of Vitis vinifera var. Chardonnay Vitis vinifera
                                                                                                                                                                                                                                                                                                                                                                            Cramer,G.R. and Cushman,J.C.
An expressed sequence tag database
Vitis vinifera var. Chardonnay
                                                                                                                                                                                                                                 MS200, Reno, NV 89557-0014, USA
Tel: 775-784-1918
Fax: 775-784-1650
                                                                                                                                                                                                                                                                                                                                                          Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; Vitaceae; Vitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vitis vinifera
Vitis vinifera
                                                                                                       Plate: 026 row: C column: 02
Seq primer: T7 20mer (forward)
                                                                                                                                              FORWARD: T3 20mer
BACKWARD: T7 21mer (backward)
                                                                                                                                                                                                                                                                                               Department of Biochemistry University of Nevada
                                                                                                                                                                                                                                                                                                                                             Contact: Cushman JC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CD710878.1 GI:32245059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA clone VVA026C02 5, mRNA sequence. CD710878
                                                                                                                                                                                            PCR PRimers
                                                                                                                                                                                                                Email: jcushman@unr.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCACTTTTCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCGTCATTGTGGCCTTATGCCATTTTCAAAGAATTGCAAGGGTGATAACACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGCAATAATTGCTGTTCCTTATGATTGGAGACTATCACCATCAAAACTTGAGGAACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCTCTCTCTGTGTGGAAAGAATGGGTTAAATGGTGTATTGAGTTTGGTATAGAGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCTTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTTGAGTTTTGGTATAGAAGCAA 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCATTTTTCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTCATCAATGTGGGATGTTGCCATTTTCAAAATACTGTAGAACAGATGATAAGTACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTGCACCTTCGGCGTTCCAGTTTCTGAGGGAACTGCTCGCTTAATGTTCAATTCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GIGTAACGITTIGGCCTICCTGTITCTGAGGGAACTGCTCGGTTGTTGTCCAAITCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTCTATAGTATTTGCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGAATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTTTATTTCCACAAACTCAAGCTGACTTTTGAAACTGCCTACAAACTTCGTGGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTTTGCTGTTGGAGCCCCTTTTCTTGGTGCAACGGAGACGATCAAGGCTGCAATTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGAAGCTTGAAATAGCTCCAAAAGAATATATGAATTGGCTTGATAAACACATCCATGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAGGCTAGAAATTGCACCAAAACATTATTTGAAGTGGCTTGATCAGCATATCCATGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTCATTAGTGTACGCTCATTCACTTGGAAACCTTGTTTTTCGATACTTTCTAGAGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 560)
                                                                                 quality sequence stop: 560.
/organism="Vitis vinifera"
/mol_type="mRNA"
                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      876
                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                          abiotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 25-JUN-2003
for abiotic
                                                                                                                                                                                                                                                                                                                                                                                                          leaves
```

540 862 480 802 420

of.

밁 á

```
RESULT 13
CA090564
LOCUS
 REFERENCE
AUTHORS
                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                          1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1255
                                                                                                                                                                                                                                                                                                                                                                                                                1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  365
                                                                                                                                                                                                                                                                                                            545
                                                                                                                                                                                                                                                                                                                                                                                                                                                  425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    429;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53
                                            Saccharum officinarum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD
clade; Panicoideae; Andropogoneae; Saccharum; Saccharum officinaru
                                                                                                                                     5', mRNA sequence.
CA090564
CA090564.1 GI:34943871
EST.
                                                                                                                                                                                                       CA090564
SCSGAM2105C04.g AM2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ர
 1 (bases 1 to Vettore, A.L., o
                                                                                                                     Saccharum officinarum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAGCATGGAATGTGGCCTTCCCACCCTTTTGTCTTTTCACAGCCCGTGAACTAGCAGATG
                                                                                                                                                                                                                                                                                                                                          GTTAAGTACATAACCT 1570
                                                                                                                                                                                                                                                                                                                                                                                                  CTAAATGTTGATCATGAGCATGGGTCAGACATCATAGCTAACATGACAAAAGCACCAAGG 1554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAAGTTAACATAACAATGGCTCCCCAGCAGAACACGATGGAAGCGACGTACATGTGGAA 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTGGGGATGAGACGGTACCCTATCATTCACTCTCTTGGTGCAAGAATTGGCTCGGACCT 1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTGAAGGATCTTTAGTCTCAAGATCAGGAAATCTAGTTGAAGGGAACCCAGGAGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTAAAGAAGTTGTATCATGATGACCCTGTTTTTAATCCTCTGACTCCTTGGGAGAGAGCCA 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAACCNCTTTTCAAAGCAATAGAGGGTTATGATCCAGATAGCAAGAGGCTCTTGTACCAA 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGA-CTCTTTCAAAGCAATAGAAGACTATGACCCAGATAGCAAGAGGATGTTACACCAG 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTAACATGGAATGTGGACTCCCCACTCAGTTATCCTTCTCCGCTCGTGAGATATCAGATG
                                                                                                                                                                                                                                                                                                                                                                            TTCAATGTAGAACATCATCCTGATGAAGATATAGTTCCCAATATGACAAGGTCACCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAGTGAACATAACAAGAGCTCCTCAGTCGGAGCATGATGGATCTGACATACAAGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTGGGGATGAGACGGTTCCATACCATTCTCTCTCTTGGTGCAAGAATTGGCTTGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGAAGGTTCCCTCGTGTCAAGGTCTGGAACTGTGGTTGATGGGAACGCTGGACCTATA 1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTGCACCAAGTGGAAAGCCGTATCCTGATAACTGGATCATGACTGATGTCATTTATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTGCCCCAAGTGGCAAACCTTATCCTGATAATTGGATCATCACGGATATCATTTACGAA 1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTACAGAAGTTATATCATGGTGATCCAGTTTTGAATCCACTTACACCATGGGACAGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="leaf"
/dev_stage="juvenile and adult"
/dev_stage="juvenile and adult"
/clone_lib="An expressed sequence tag database for abiotic stressed leaves of Vitis vinifera var. Chardonnay"
/note="Vector: Lambda Uni-Zap XR, Bluescript SK-; Site 1:
BCoRI; Site_2: XhoI; Library construction was performed according to Stratagene's recommended protocol for the Lambda UniZapXR vector and cDNA synthesis kit."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:29760"
/clone="VVA026C02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20.9%;
, 676)
da Silva,
                                                                                                                                                                                                                                                                                                            560
                                                                                                                                                                                                         Saccharum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 343; DB 6;
Pred. No. 2.7e-91;
0; Mismatches 126
, F.R.,
                                                                                                                                                                                                                       676 bp
Kemper, E.L.
                                                                                                                                                                                                         officinarum
                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126;
and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                       cDNA clone
                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
 Arruda,
                                       Poaceae; PACCAD
charum officinarum
                                                                                                                                                                                                                         EST 23-SEP-2003
                                                                                                                                                                                                       SCSGAM2105C04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                                                                                              544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                 밁
                                                                          δ
                                                                                                                 밁
                                                                                                                                                 á
                                                                                                                                                                                   밁
                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best
```

5 밁 á 망 Ś 밁 Ş В Ś В Ś 밁 ઠ Вb δ 밁 á 뭐 á

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                             319
                        558
                                                                                                       499
                                                                                                                                                   474
                                                                                                                                                                                          439
                                                                                                                                                                                                                                    414
                                                                                                                                                                                                                                                                              379
                                                                                                                                                                                                                                                                                                                       354
                                                                                                                                                                                                                                                                                                                                                                                                         294
                                                                                                                                                                                                                                                                                                                                                                                                                                                259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://www.bcccenter.fcav.unesp.br
Plate: 105 row: C column: 04
Seq primer: T7 Promoter Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: parruda@unicamp.br
Clone distribution: clone distribution
through the Brazilian Clone Collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Universidade Estadual de Campinas
Caixa Postal 6010, 13083-970, Campinas SP,
Tel: 55 19 3788 1137
Fax: 55 19 3788 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The libraries that made SUCEST Genet. Mol. Biol. 24 (1-4), 1-7 Contact: Arruda P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Centro de Biologia Molecular e Engenharia
CGGCCCTTCTATAGTATTTTGCCCATTCAATGGGTAATAATGTCTTCAGATACTTTCTGGA
                                                                                                                                                                         GGTCCTCTTCTACTGTCTGGAAAGAGTGGCTTAAGTGGTGTGTTGAGTTTGGTATAGAA 438
                                                                                                                                                                                                                                                                                                                                             AAGTCACGGCCTGACAGTGGTCTTTCAGCCATCACAGAATTGGATCCAGGGTTACATAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTGCTGGTTTAAGTGTATGGTGCTAGATCCTTATAATCAAACAGACCATCCCGAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCCGGGGCCGACGGCGCGGAGTTCGATTACCGGAAGCTCTCGGGGATCATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGTGGAGGATGAGACCGAGTTTCACGGCGACTACTCGAAGCTATCGGGTATAATCATT
                                                                 CGAGATCTGTTTTTTCACAAATTAAAGTTTACTTTTGAACTTGTTTTGAAACTCCCGCGG
                                                                                                       CGTGACCTTTACTTTCACAAGCTCAAGTTGACCTTTGAAAACTGCTTTAAAACT-CCGTGG
                                                                                                                                                   GCTAATGCAATTATCGCTGTCCCGTATGATTGGAGACTGCCCCCATCAATCCTTGAGGAG
                                                                                                                                                                                                                                    GGTCCTCGCTCTTCAGTATGGAAAGAATGGGTCAAATGGTGTGTAGAGTTTGGCATTGAA
                                                                                                                                                                                                                                                                                                                       AAGTCAAGGCCTGATAGTGGTCTTTCTGCAATTACAGAGTTGGACCCTGGTTATATAACA
                                                                                                                                                                                                                                                                                                                                                                                                         TTCGACTTCAACCCCCTAGACTCCGTCTGGCTTGACACCGCCAAGCTTTTCTCCGCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGGATTTGCGTCGACGCAGCTACGAGCGTGGTCGATCCTTGACTGCCATACACTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab host="DHIOB"
//Lone lib="AM2"
//clone lib="AM2"
//clone lib="AM2"
//note="Organ: Apical meristem and tissues surrounding of immature plants; Vector: pSportl; Site 1: SalI; Site 2: NotI; An unidirectional cDNA library generated from [Apical meristem and tissues surrounding of immature plants]. cDNA was prepared from polyA+ mRNA using SuperScript Plasmid System Kit (Invitrogen). The double-strand cDNAs were fractionated in a sepharose CL-2B 40cm-columns and fragments sizing between 0.8 and 1.5 Kb were directionally cloned into the vector. Details of each source of RNA and library construction can be obtained at http://sucest.lad.ic.unicamp.br/public"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /mol_type="mRNA"
/db_xref="taxon:4547"
/clone="SCSGAM2105C04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Saccharum officinarum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 331.8; DB (
Pred. No. 6.9e-88
0; Mismatches 13'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        information can
Center (BCCC) at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genetica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brazil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        676;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         can be found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                       413
                                                                                                         557
                                                                                                                                                   533
                                                                                                                                                                                            498
                                                                                                                                                                                                                                    473
                                                                                                                                                                                                                                                                                                                                                                                                         353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     198
                          617
                                                                    593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           233
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
AI974291
                             S
                                                                               밁
                                                                                                                   S
                                                                                                                                                                밁
                                                                                                                                                                                            ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POCUS
                                                                                                                                                                                                                                           Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                          1109
                                                                                                                                                                                                    989
  145
                                                                                                                                                                                                                                             389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             594
                                                                               85
                                                                                                                                                                25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: kvandenb@cbs.umn.edu
Other name: 07-B-7; date: 6/30/99; Submitted to the Database of
Expressed Sequence Tags (dbEST) on 08/25/99; More information is
available at 'http://chrysie.tamu.edu/medicago'.
Seq primer: SKmod (CTA gAA CTA gTg gAT CC).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               University of Minnesota
20 BloSci Center, 1445 Gortner
Tel: 612 624 2755
Fax: 612 625 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence.
AI974291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: VandenBosch K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ESTs from uninoculated roots Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VandenBosch,K., Hur,J., Moore,J., Beremand,P., Peng,H. and Ellis,L. ESTs from uninoculated roots of Medicago truncatula (199b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST.
Medicago truncatula (barrel medic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AI974291
534 bp mRNA linear EST 26-
T110293e KVO Medicago truncatula cDNA clone pKVO-1E14, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Department of Plant Biology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Medicago truncatula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AI974291.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Medicago.
                                  CAGATAGCAAGAGGATGTTACACCAGTTAAAGAAGTTGTATCATGATGACCCTGTTTTTA 1168
                                                                                                                   CTTTCACAGCCCGTGAACTAGCAGATGGGACTCTTTTCAAAGCAATAGAAGACTATGACC 1108
                                                                                                                                                                                        TTACAGAAACAGCTCTAGTCAACATGACCAGCATGGAATGTGGCCTTCCCACCCTTTTGT
CAGACAGCAAGAGACTCTTGTACCAATTAGAGAAATCATATCTTGGTGATCCTGTACTTA
                                                                                                                                                              ATGCTTGAAACTGGAAAATGCCC 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGCTGAGGCTAGAAATTGCAC 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGCCATCTTTGGTATTTGCTCTTTCGATGGCAAATAATGTGTTTTCGCTACTTTTTGGA 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 534)
                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                         /clone lib="KVO"
/clone lib="KVO"
/note="Vector: pBluescript SK -; Site 1: EcoRI; Site 2:
XhoI; cDNA was prepared from polyA+ enriched RNA. The cDNA
was directionally ligated into the Unizap XR vector from
Stratagene and packaged using Gigapack III Gold packaging
extracts. Plasmids containing cDNA inserts were excised
from the recombinant lambda-Zap phage using Ex-assist
helper phage and propagated in XLOLR cells."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="pKV0-1B14"
/tissue_type="Seedling roots"
/dev_stage="Immediately prior to inoculation
Sinorhizobium meliloti (0 hour)"
/lab_host="E.coli strain XLOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Medicago truncatula"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cultivar="genotype A17"
/db_xref="taxon:3880"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L. .534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GI:5776732
                                                                                                                                                                                                                                                            19.3%;
76.3%;
                                                                                                                                                                                                                                         Score 316.4; DB 1;
Pred. No. 2.7e-83;
0; Mismatches 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ave,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Paul,
                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST 26-AUG-1999
                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA
                                                                               144
                                                                                                                                                              84
                                                                                                                                                                                                                                           0
```

```
RESULT 15
BI267124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
ORIGIN
                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Korth, K., Scott, A.D., Harris, A.R., Gonzales, R.A. Flores, H.R., Inman, J.T., Weller, J.W. and May, G. I. Expressed Sequence Tags from the Samuel Roberts Medicago truncatula insect herbivory library Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NF097C07IN1F1054 Insect herbivory Medicago truncatula NF097C07IN 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Korth K
Dept. of Plant Pathology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Medicago truncatula (barrel medic)
                                                                                                                                                                                                                                                                                                 Bmail: kkorth@comp.uark.edu
Insert Length: 628 Std Error: 0.0
Plate: 097 row: C column: 07
Seq primer: TCACACAGGAAACAGCTATGAC.
                                                                                                                                                                                                                                                                                                                                                                                   Tel: 501 575 5191 Fax: 501 575 7601
                                                                                                                                                                                                                                                                                                                                                                                                                           University of Arkansas
217 Plant Science Building,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BI267124.1 GI:14871872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCTAAAGACAGAGGTTGGTTATTACTTTGCCCCCAAGTGGCAAACCTTATCCTGATAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCCTCTGACTCCTTGGGAGAGACCACCTATAAAAAATGTATTTTGCATATATGGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGATGGAAGCGACGTACATGTGGAACTAA 1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATCATTACAGATGTCGTTTATGAGTACGAAGGATCTCTAGTCACAAGGTCAGGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGATCATCACGGATATCATTTACGAAACTGAAGGTTCCCTCGTGTCAAGGTCTGGAACTG 1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTCAAAGACAAAGGTTGGTTACTACTTTGCCCCCTAGCGGCAAGCCGTATCCTGATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCCACTTACACCTTGGGATCGGCCACCAATAAAAAACGTGTTCTGCATTTATGGCAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGATGGCTCAGATGTACAGATTGATTTGA 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGTTGAAGGGAACCCTGGATCTATAAGTGGCGATGAGACGGTTCCATACAACTCCCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTTGATGGGAACGCTGGACCTATAACTGGGGATGAGACGGTACCCTATCATTCACTCT 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 628)
        /tissue_type="local and systemic leaves"
/dev stage="mature"
/dev stage="mature"
/clone_lib="Insect herbivory"
/note="Vector: Lambda Zap; Library was produced from full)
expanded M. truncatula leaves of plants fed upon by
Spodoptera exigua (beet armyworm) for 24 hours. Systemic
(undamaged leaves from injured plants) and wounded leaves
were harvested and pooled."
                                                                                                                                                                                               /organism="Medicago truncatula"
/mol_type="mRNA"
/db_xref="taxon:3880"
                                                                                                                                                                                                                                                           1. .628
                                                                                                                                                                             clone="NF097C07IN"
                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                             Fayetteville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ģ
                                                                                                                                                                                                                                                                                                                                             0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gonzales,R.A.,
W. and May,G.D.
                                                                                                                                                                                                                                                                                                                                                                                                                               AR 72701,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Noble Foundation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bell, C.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST 18-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            324
```

Query Match Best Local Similarity

18.7%; 79.2%;

Score 306.6; DB 4 Pred. No. 2.6e-80;

4.

Length 628;

Matches	374; Conservative 0; Mismatches 97; Indels 1; Gaps 1;	
Qy	108 CGACTACTCGAAGCTATCGGGTATAATCATTCCGGGATTTGCGTCGACGCACGC	
Дb	149 CGATTACTCTAAACTCTCCGGCATTATTATCCCAGGCTTCGCTTCTACTCAGCTTCGAGC 208	
Ş	168 GTGGTCGATCCTTGACTGTCCATACACTCCGTTGGACTTCAATCCGCTCGACCTCGTATG 227	
Вb	209 ATGGTCTATTCTTGACTGCCCTTACTCTCCGCTAGATTTCAATCCTCTCGATTTGGTTTG 268	
Оy	228 GCTAGACACCACTAAGCTTCTTTCTGCTGTCAACTGCTGGTTTAAGTGTATGGTGCTAGA 287	
Db	269 GCTCGACACCAAACTTCTTCTGCTGTGAATTGTTGGCTTAAGTGCATGTTGTTGGA 328	
γ	288 TCCTTATAATCAAACAGACCATCCCGAGTGTAAGTCACGGCCTGACAGTGGTCTTTCAGC 347	
DЬ	329 CCCTTACAATCAAACAGATCATCCTGATTGTAAATCCCGTCCTGATAGCGGTCTTTCCGG 388	
γ	348 CATCACAGAATTGGATCCAGGTTACATAACAGGTCCTCTTTCTACTGTCTGGAAAGAGTG 407	
DЬ	389 AATTACAGAGCTTGATCCAGGTTATATAACAGGACCTCTTTCGTCTGTATGGAAAGAATG 448	
δ	408 GCTTAAGTGGTGTGTTGAGTTTGGTATAGAAGCAAATGCAAATTGTCGCTGTTCCATACGA 467	
Db	449 GATTAAGTGGTGTATTGAATTTGGCATANAAGCTAATGCAATAATTGCTGTTCCTTATGA 508	
γ	468 TIGGAGATIGICACCAACCAAATIGGAAGAGCGIGACCITTACTITICACAAGCICAAGTT 527	
Db	509 TTGGAGACTGTCACCATCCATGCTTGAAGAACGAGACCTTTACTTTCATAAGCTTAAATT 568	
Ş	528 GACCTTTGAAACTGCTTTAAAACTCCGTGGCGGCCCTTCTATAGTATTTTGCC 579	
дь	569 GACATTTGAGACTGCTTT-CAACTTCGAGGNGGCCCCTCTTTANTTTTTGGC 619	
Search con	Search completed: November 9, 2005, 08:31:22	

Search completed: November 9, 2005, 08:31:2 Job time: 5649 secs